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POLLUTION-CAUSED FISH KILLS IN 1965

Federal Water Pollution Control Administration
Washington, D. C.

1965

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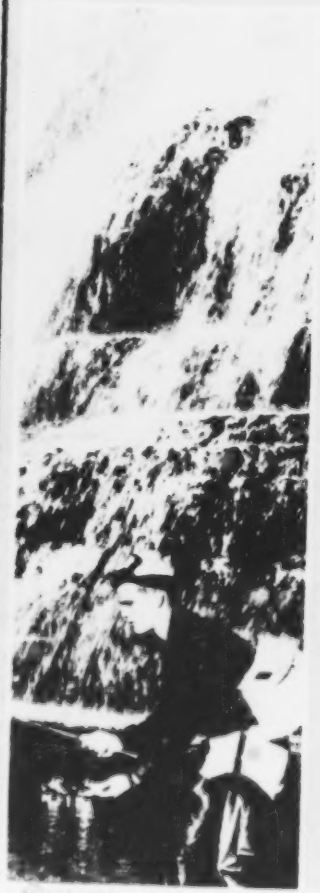

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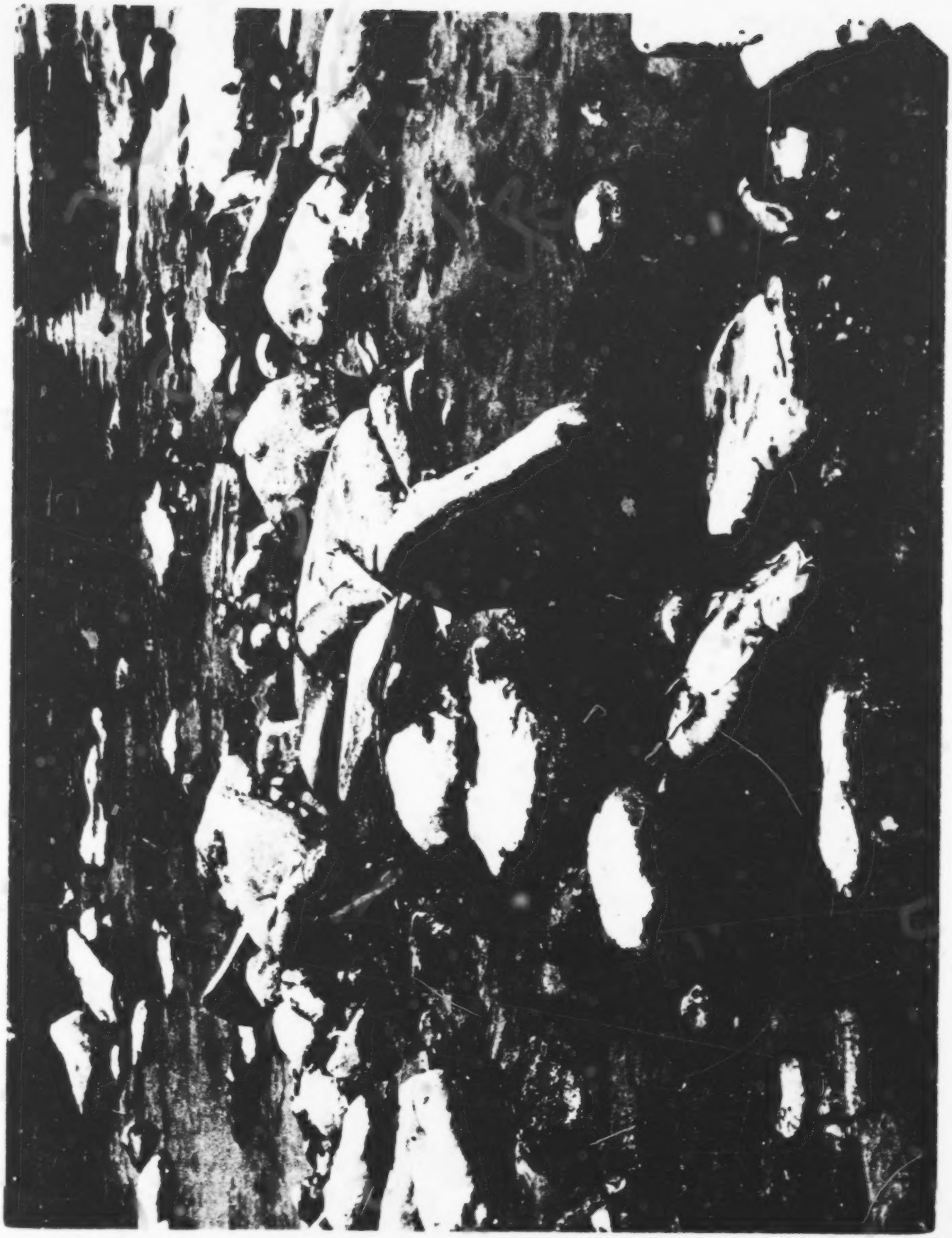

Pollution-Caused Fish Kills in 1965

SIXTH ANNUAL REPORT

Details of illustrations in this document may be better studied on microfiche.

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Basic Data Program
Washington, D.C. 20203

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WP-12

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(1965 Edition)

FOREWORD

This report of pollution-caused fish kills reflects the investigation of 531 separate kills documented by State officials in 1965. Forty-four States reported that 11¾ million fish were lost because of pollution.

This study and reporting program were developed in cooperation with the State agencies responsible for fisheries management and the U. S. Fish and Wildlife Service. It was designed to establish centrally a new series of statistics on water pollution cause and effect. If the sources and kinds of fish killing substances are revealed, greater care on the part of individuals responsible for disposal of specific toxic agents will come about.

Many fish kills occur that are unobserved or are not reported to State officials. Obviously, no kills occur in water that cannot support fish life. For these and other reasons, the report cannot be considered a perfect record of biological hazard. Nevertheless, contaminants that kill fish may endanger wildlife, domestic livestock, irrigated crops, and even sources of drinking water supply.

In every State, significant pollution-caused fish kills are reported to State agencies by fishermen or other citizens who discover them. The kills are then evaluated by technically trained State officials if they can get on the scene before evidence is dissipated by current or wind action.

For many reasons, there is a great variation in the details of the reports received. In some States, considerable information is reported on all kills. This is especially true in States where damage claims are made for fish lost. In other cases, reports are general.

The Federal Water Pollution Control Administration has not asked State agencies to change their investigative procedures because each has adopted a pattern suitable to its own authority and responsibility. It does, however, request all States to submit a report on each fish kill as it is brought to their attention. Postage-free report forms are supplied to the States for this purpose.

The annual report is published in the spring each year and is distributed to cooperating agencies and organizations, and to individuals requesting it.

The Federal Water Pollution Control Administration expresses its appreciation for the cooperation of the State agencies and individuals that make possible the development of these valuable statistics.

Analysis

Of more than 11,750,000 fish reported killed by pollution in United States waters during 1965, over half were killed as a result of pollution from municipalities; industry accounted for one third; and agricultural operations were next in line.

The average number of fish killed was about 4,000. This excludes as unrepresentative 16 cases where the number was 100,000 or more. The full list of these major kills follows:

Lake or Stream	Near or In	Number Fish Killed	Operation
Wethersfield Cove	Wethersfield, Conn.	3,000,000	Sewage disposal
Blanchard River	Hancock Co., Ohio	1,245,374	Sewage disposal
Big Turkey Creek	Waukomis, Okla.	1,200,080	Petroleum
Cachuma Lake	Santa Barbara, Calif.	600,600	Water System
Woodcock Creek	Saegertown East, Pa.	600,038	Poisons
Arkansas River	Dodge City, Ark	500,000	Manure drainage
Valley Creek	Bessemer, Ala.	469,500	Combination of industries
Coralville Reservoir	Coralville, Iowa	400,000	Paper and allied products
Maumee River	Lucas Co., Ohio	361,418	Sewage disposal
Crane Creek	Ottawa Co., Ohio	278,968	Food products
Spring Creek	Caledonia, N.Y.	200,000	Petroleum
North Raccoon River	Lake-Sac Cities, Iowa	200,000	Sewage disposal
Sangamon R. S. Fork	Kincaid, Ill.	146,902	Pipeline
W. Branch Susquehanna	Jersey Shores, Pa.	125,000	Mining
Jordan Creek	Fairmount, Illinois	107,145	Chemicals
Sandusky River	Sandusky Co., Ohio	105,522	Sewage disposal

In many cases, both major and minor, the causes were negligence, carelessness, or ignorance. There are many instances of broken pipelines, careless spraying of pesticides, and washing poisonous solutions from tanks and other containers. In some cases, fish kills are permitted to recur time and again, as when an industrial plant or municipality treats its waste inadequately or not at all, or when acid continues to flow from a coal mine.

In this category belongs a case where two to four million alewives were killed in a cove as the result of a heavy sewage outflow from one of Connecticut's largest cities. During a heavy rain the untreated sewage overflowed into a storm drain entering the cove. Sea gulls feasted for days on the baby alewives or herrings, two to four inches long.

In many instances, the investigator fails to find any specific cause for a fish kill; in other instances, it takes many weeks of hard work to come up with the cause. One of the largest and most mysterious fish kills of the year took place in the Ashley River near Charleston, South Carolina. Assistance in finding the causes was provided by a team of Federal investigators from the Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio. They found that a phosphate compound, anticholinesterase, used in manufacturing pesticides, was one of the prime toxic agents. As a result, a Charleston chemical company agreed to change its waste disposal system, but it is worth noting that the report did not place full blame on any one industry. It observed that, of the 10 industrial

plants which discharge waste into the river, "only one industry has effective waste control procedures in operation."

Such a finding—the attribution of a fish kill to a combination of circumstances—is fairly common. When 800,000 pounds of fish were lost on the Iowa River, an official of the State Conservation Commission was forced to conclude that the kill "was caused by a combination of factors, including pollution from industrial and municipal wastes, low river flow, and heavy ice conditions."

In 1965, as in previous years, local newspapers carried numerous reports of these disasters under such headlines as "Damages in Fish Kill Are Tallied." "100,000 Fish Die; Albion Firm Cited." "Thousands of Dead Fish Close 4 Miles of Beaches." "10,000 Fish Killed in Heuvelton Area." "Severe Fish Kill in Area." "2 Del. Fish Kills Laid to Farm Chemicals." "City Probes Dead Fish in Creek." "State Studies Claim 60,185 Fish Killed."

When a steel products company accidentally poured 600 gallons of zinc cyanide into the Kalamazoo River, killing an estimated 45,000 bass and 55,000 carp, suckers, and bullhead, two State agencies took prompt action. The Michigan State Water Resources Commission ordered the company to build facilities that would provide for complete abatement of its wastes by the end of the year, and the State Conservation Department ordered payment be made for the game fish killed.

Quotes from Field Reports

The reporting of pollution-caused fish kills was begun June 1, 1960, in an attempt to obtain additional information on the effects of pollutants discharged to surface waters. This activity is being conducted by the Federal Water Pollution Control Administration. Previously it had been performed by the Division of Water Supply and Pollution Control, an agency of the U. S. Public Health Service.

The primary responsibility for such reporting rests with the States. The success of the activity depends on completeness of reporting by State fish and game agencies. They report the kills on a form (see Page 13) which lists date, location, cause, number, and types of fish killed, miles of streams or areas of lake affected, duration of critical effect, and additional remarks. Since these additional remarks sometimes have a greater impact than cold statistics, some are printed here in much the same form that they were submitted.

⁂

A 5,000 gallon truck and trailer load of phenol was wrecked, with most of the phenol entering the lake. The kill occurred 12 hours later. Species affected were rainbow trout, brown trout, large mouth bass, threadfin shad, bluegill, green sunfish, sucker, squawfish, carp and brown bullhead. An estimated 10,000 fish were killed.

⁂

A heavy rain caused the mill's stabilization lagoon to overflow, thus flushing "bad" water from the lagoon and polluted areas of the creek into a section of the creek inhabited by fish. An estimated 450 pounds of fish were lost.

⁂

This kill of two to four million fish indicates a need to correct sewage flow so that it does not overflow into storm drain above cove. Secondary treatment desirable.

⁂

Organic material from a citrus processing plant was not sufficiently decomposed by the plant's filtering system before entering the river, hence a high biochemical oxygen demand and oxygen depletion. (8,700 pounds—approximately 15,000 fish.)

A farmer piled his wheat and oats along the stream and sprayed the pile with dieldrin. There was 1½ inch rain, and some of the material was washed into the stream. (2,200 fish.)

This was a severe winter loss resulting from improper or untreated sewage. Owing to duration of kill, we have probably lost all fish for a 40-mile reach of the river. (200,000 fish.)

Kill appears to have been caused by excessive runoff from commercial feed lots. This area had 5½ inches of rain during the last two weeks. This extensive kill is identical to kills reported in this area on three occasions in 1964. In numbers (500,000), this kill was primarily minnow life with channel catfish and carp making up the remainder.

This stream is periodically killed out by acid drainage from abandoned strip mine. (5,500 fish.)

Pollution of this creek by ammonia and zinc discharged from industrial complex has almost eliminated aquatic life for several miles of stream. Ammonia nitrogen was 31 parts per million at time of investigation.

A tank car filled with Cresol was derailed in a train wreck. About 20,000 gallons of Cresol were flushed into the stream. A part of this was pumped from the stream into trucks. The remainder entered the underground water at a "sink" in the stream bed. (1,000 fish.)

When a frozen food locker plant was dismantled, the contractor drained two drums of ammonia from the refrigeration unit into the creek. (11,000 fish.)

Company dumped 2,000 gallons of metal wash solution containing cyanide. The solution flowed through a yard drain into a storm sewer and eventually into a stream which was one source of a fish hatchery, eliminating all fish in one pond. Concentrations as high as 92 parts per million were found to be present in samples collected. About 10,000 of the 18,000 fish killed were brown trout.

The dam of a temporary slush pit broke and its contents (sodium chloride and/or bentonite, a drilling mud) entered the creek 100 yards from the well site. The pollution gave the creek a "milky" appearance and traveled the entire 39 miles as a "slug." (1,200,000 fish.)

Drainage from a deep mine drained into the creek. Investigation proved the mine was being operated without a permit. After talking with the investigator the owner pulled the rails in the mine, filled in the heading with a bulldozer, and quit. (5,000 fish.)

Potato field north of creek was sprayed by plane. Area is stocked with trout. Water appeared normal, no other damage apparent. (600,000 fish.)

Kill caused by drainage from mining waste material piled along the creek. The acid lay in pockets until rain showers moved it downstream. Insect life also killed. (50,000 fish.)

Kill confined to lower reaches of stream, where it flows through a residential area. Water sample revealed 2.5 parts per billion dieldrin. Other compounds also present in concentrations of less than 0.25 parts per billion. Quite possible that at least some of these chemicals originated from residential users—positive checks in this regard were not feasible. (More than 1,000 fish.)

An industrial worker accidentally turned some wrong valves and dumped about 300 gallons of cyanide solution into a tank which ruptured and allowed some of the solution to drain into the stream. Most of the fish killed were minnows. (15,000 fish.)

A golf course was sprayed by a commercial sprayer to control mosquitos. Some of the materials (DDT and malathion) reached the stream. (4,000 fish.)

This fish kill started immediately downstream from a sewage trea ment plant outfall. Apparently something toxic passed through the treatment plant. Almost all algae in the stream were killed. Laboratory tests of a sample showed presence of copper and phenols, used to control algae in the cooling towers. (500 fish.)

Rupture of tank semitrailer resulted in loss of 1,400 gallons of 6 pounds per gallon toxaphene concentrate at plant site. River water samples were found to have as much as 8 to 10 parts per billion. Gas and thin layer chromatography processes used for testing. Fish tissues had content of 25 to 60 parts per billion. Kill area extended several miles. (30,000-35,000 fish.)

The brackets broke on a truck applying liquid fertilizer to a corn field and the tank rolled into the stream. An estimated 10 gallons of the liquid spilled into the creek, killing 2,000 fish.

Detergent waste products stored in an abandoned quarry were pumped into brook and killed 2,000 smelt.

A copper valve on a cyanide vat failed owing to corrosion. About 200 pounds of cyanide entered municipal sewer system, passed through an overloaded treatment plant, and entered the stream. (2,000 fish.)

Fertilizer plant discharged effluent with high ammonia concentration into river. Flash flood occurring when river was low flushed out river bed and caused kill. Water samples showed up to 30 parts per million ammonia concentrates two days after kill. New plant owners promise cooperation to prevent recurrence of situation. (18,000 fish).

Kill caused by inclusion of industrial wastes with village sanitary sewage. Treatment inadequate for toxic components of industrial waste. (10,000 - 15,000 fish.)

Acid spilled in an industrial plant drained into a tributary. Early detection of spill and corrective measures taken to neutralize the acid helped to hold the fish kill to a minimum. Bottom of stream was covered with suspected iron particles. Water appeared reddish brown in damage zone. (10,000 fish.)

Pesticides were applied by plane to a field one quarter of a mile southeast of lake. Drift carried powder over lake. Large mouth bass, channel catfish, carp, threadfin shad, green sunfish, and bluegill were affected. Dead and dying small fish observed for 10 days. Up to 1,500 gulls fed on these fish during this time. (9,360 fish.)

Fuel oil from a broken pipeline killed 142,902 fish valued at $21,249.52.

Two industries involved. Tile company had a breakdown in fuel oil furnace; oil saturated floor and drained into creek. Electric materials company allowed copper sediment and oil from rollers and air conditioning to enter same stream. All fish and aquatic life killed in tributary from point of pollution of main stream, a distance of 16 miles. Copper sediment on stream bed.

Polishing and plating company cleaned and flushed its plating tank. Aquatic life also killed. (2,000 fish.)

Drainage from this farmer's silo has been seeping into stream and killing fish for years. He has a poor situation because underlying slate deposits prohibit digging a catch basin for seepage. Now farmer plans to line with pipe and remove seepage to higher ground away from stream. Crawfish, water worms and other aquatic life killed, as well as 500 fish.

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Comments on Tables

HISTORICAL SUMMARY

A total of 11,784,000 fish were reported killed by pollution during 1965. The fact that this figure is less than 1961 and 1964 is no indication of a trend; it probably indicates differences in the extent of reporting rather than differences in the number of fish killed.

Of the 531 reports received, 446 gave the number of fish killed. The remaining 85 said, "thousands", "many hundreds," "pounds", or some other unquantifiable number, or left the question unanswered.

Thus, the number of fish killed is at best an estimate. However, some States have developed elaborate and carefully worked out methods for arriving at a figure. The number as given, or mid-point of a range, is used throughout this report. *No artificial degree of accuracy is implied by this procedure.*

Six States submitted no reports. Only 339 reports indicated the extent of water damaged. They reported 1,300 miles of stream involved, 4,630 acres of lake or bay, and 20 miles of shore line.

SOURCE OF POLLUTION

Industry was responsible for the fish kills in 241 (or 45 percent) of the 531 cases reported. The number of fish killed was one-third of the total. Municipal operations accounted for only a fourth of the reports, but was responsible for over half (52 percent) of the fish. Agricultural operation was third in both categories. Transportation and miscellaneous operations each created 5 percent of the reports but were responsible for only a negligible number of fish killed.

The average size of kill in 1965 was 4,310, the smallest in any of the last 5 years' full reporting. This average, and the average for each of the sources, was derived after the 16 reports of fish kills over 100,000 were eliminated as being un-

representative. Although transportation operations was responsible for a relatively small total of fish killed, its average kill amounted to nearly 8,000, by far the largest of the five groups. Industrial pollution was second, at 5,230. Agriculture and municipal sources gave average kills of between 3,000 and 3,500, while the miscellaneous group averaged slightly over 1,000.

The total figure of 11,784,000 fish killed during 1965 was reached by assuming that those reports of kills where no numbers were given did in fact kill as many as the average.

SUMMARY BY OPERATIONS SUBGROUP

Sewage disposal activities, either through malfunction or overloading, accounted for almost half the number of fish killed during 1965. Petroleum operations, including well drilling and refining, was next in toxicity, killing 1,500,000 fish. Agricultural operations was the third most potent killer with 770,000 victims.

TYPES OF FISH KILLED

Only seventy-four percent of the respondents answered the question concerning the breakdown between game and non-game fish. On the basis of the percentages they gave (13 percent game, 87 percent non-game), the total kill of 11,784,000 indicates that 1,409,000 were game fish and 10,375,000 were non-game fish.

SUMMARY BY TYPE OF WATER

As indicated in Table 5, 85 percent of the fish were killed in rivers and streams. Of the 4,630 acres of lakes that were polluted, two reports accounted for 4,000 acres (1,000 acres in California, with 600,600 fish killed, and 3,000 acres in Arkansas, with no number of dead fish given).

SUMMARY BY MONTH

As indicated in Table 6, the greatest number of kills during 1965 took place in August, but the deaths were highest in September, January, October and July, in that order.

SEVERITY OF KILLS

The remaining tables show the severity of kills and their duration.

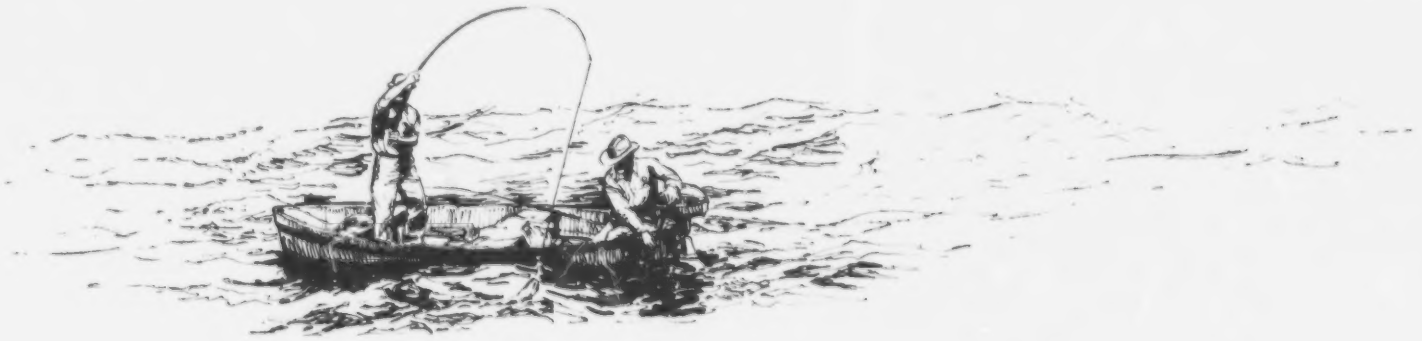

Table 1—Historical summary of pollution-caused fish kills, June 1960-December 1965

	June-December 1960	1961	1962	1963	1964	1965
Number of States reporting	36	45	37	38	40	44
Number of reports	286	411	381	436	485	531
Reports which state number of fish killed	149	263	233	300	385	446
Total estimated number of fish killed	6,379,000[1]	15,910,000[1]	7,118,000[1]	7,860,000	18,387,000	11,784,000
Average size of kill[2]	2,925	6,535	5,710	7,775	5,490	4,310
Largest kill reported	5,000,000	5,387,000	3,180,000	2,000,000	7,887,000	3,000,000
Reports where extent of area affected was stated						
A. River						
Number of reports	189	240	259	271	339	292
Miles of stream	1,204	1,686	1,448	2,203	1,440	1,300
B. Lakes and reservoirs						
Number of reports	25	50	25	49	57	38
Acres affected	1,407	5,967	2,581	5,644	12,637	4,630
Average duration of kill in days	2.95	2.64	2.59	3.18	2.44	2.57

[1] After adjustment for reports giving two or more causes.
[2] Excludes reports of 100,000 or more as being unrepresentative; this number does not exceed 16 reports in any one year.

Table 2—Pollution-caused fish kill summary by State

	Total number of reports	Reporting number of fish killed		Extent of damage					
				Miles of river		Acres of lake		Miles of shore	
		Number of reports	Number of fish	Number of reports	Miles	Number of reports	Acres	Number of reports	Miles
Alabama	14	10	482,871	9	52	1	9	—	—
Arkansas	4	2	1,500	1	3	1	3,000	—	—
California	10	9	718,960	—	—	5	1,111	1	2
Connecticut	5	4	3,013,436	2	3	1	1	—	—
Delaware	2	1	10,000	1	1	—	—	—	—
Florida	3	3	45,115	2	28	—	—	—	—
Georgia	8	1	5,000	6	54	—	—	—	—
Hawaii	1	1	1,000	1	1	—	—	—	—
Idaho	1	1	1,250	1	1	—	—	—	—
Illinois	13	13	402,967	10	81	1	10	1	6
Indiana	16	16	80,000	15	48	1	2	—	—
Iowa	7	6	601,550	2	43	—	—	—	—
Kansas	6	6	570,500	6	89	—	—	—	—
Kentucky	1	—	—	1	3	—	—	—	—
Louisiana	35	34	108,100	30	89	4	25	—	—
Maine	5	3	12,000	4	42	—	—	—	—
Maryland	4	2	33,200	1	4	1	6	—	—
Massachusetts	7	7	12,850	2	6	—	—	—	—
Michigan	7	7	6,449	2	4	—	—	—	—
Minnesota	4	2	2,000	4	28	—	—	—	—
Mississippi	2	—	—	1	30	—	—	—	—
Missouri	13	11	42,450	10	41	2	31	—	—
Montana	3	3	1,400	3	8	—	—	—	—
Nebraska	7	6	37,832	3	24	1	3	—	—
New Hampsire	5	4	12,950	4	11	—	—	—	—
New Jersey	27	27	53,855	10	27	8	82	2	3
New York	25	24	332,647	18	42	—	—	—	—
North Carolina	6	6	22,787	3	9	2	135	—	—
Ohio	94	94	2,378,255	—	—	—	—	—	—
Oklahoma	5	3	1,202,580	3	41	—	—	—	—

Table 2—Pollution-caused fish kill summary by State—Continued

	Total number of reports	Reporting number of fish killed		Extent of damage					
		Number of reports	Number of fish	Miles of river		Acres of lake		Miles of shore	
				Number of reports	Miles	Number of reports	Acres	Number of reports	Miles
Oregon	14	4	10,599	3	3	1	20	—	—
Pennsylvania	72	66	944,108	68	186	1	1	—	—
Rhode Island	2	2	6,000	1	3	1	7	—	—
South Carolina	1	—	—	—	—	—	—	—	—
South Dakota	1	—	—	—	—	1	3	—	—
Tennessee	14	13	37,423	11	76	1	150	—	—
Texas	57	31	68,931	29	101	3	7	4	5
Utah	3	3	2,800	3	51	—	—	—	—
Vermont	2	1	500	2	23	—	—	—	—
Virginia	4	1	200	3	8	—	—	—	—
Washington	3	3	15,600	3	9	—	—	—	—
West Virginia	13	12	68,2[illegible]	12	20	—	—	—	—
Wisconsin	2	2	44,100	1	2	—	—	1	4
Wyoming	3	2	1,408	1	5	2	27	—	—
Total	531	446	11,393,439	292	1,300	38	4,630	9	20

Table 3—Fish kill summary by source of pollution

Source of pollution	Number of reports	Reporting number of fish killed		Average size of kill[1]	Estimated number of fish killed[2]			Estimated number of commercial value
		Number of reports	Number of fish		Total	Game	Non-game	
Agricultural operations	107	93	1,390,136	3,190	1,435,000	232,000	1,203,000	357,000
Industrial operations	241	195	3,763,948	5,230	3,999,000	839,000	3,160,000	1,217,000
Municipal operations	135	118	5,911,604	3,560	5,972,000	160,000	5,812,000	25,000
Transportation operations	27	21	306,810	7,995	355,000	168,000	187,000	81,000
Other operations	21	19	20,941	1,100	23,000	10,000	13,000	—
Total	531	446	11,393,439	4,310	11,784,000	1,409,000	10,375,000	1,680,000

[1] Averages derived after excluding 16 reports of 100,000 or more.
[2] Includes all fish killed as reported plus the average number killed for each source applied to those reports where no actual number was given.

Table 4—Summary of fish kills by operations subgroup

Source of pollution	Number of reports	Reporting number of fish	
		Number of reports	Number of fish
Agricultural operations:			
Insecticides, poisons, etc.	74	64	770,557
Fertilizers	4	4	2,697
Manure-silage drainage	29	25	616,882
Subtotal	107	93	1,390,136
Industrial operations:			
Mining	35	33	295,223
Food and kindred products	60	48	536,563
Paper and allied products	15	11	494,860
Chemicals	37	31	218,661
Petroleum	25	17	1,516,024
Metals	10	14	73,404
Combinations	15	10	491,681
Other	40	31	137,532
Subtotal	241	195	3,763,948
Municipal operations:			
Sewerage systems	104	92	5,211,014
Refuse disposal	7	5	17,206
Water systems	3	2	604,300
Power	2	2	620
Other	19	17	78,464
Subtotal	135	118	5,911,604
Transportation operations:			
Rail	6	2	1,400
Truck	12	12	105,940
Barge or boat	3	2	2,050
Pipeline	6	5	197,420
Subtotal	27	21	306,810
Other operations	21	19	20,941
Total	531	446	11,393,439

Table 5—Fish kill summary by type of water body

Type of water body	Total number of reports	Reporting number of fish killed		Extent of damage					
				Miles of river		Acres of lake		Miles of shore	
		Number of reports	Number of fish	Number of reports	Miles	Number of reports	Acres	Number of reports	Miles
River	459	391	9,632,687	292	1,300	—	—	—	—
Lake	59	47	1,650,752	—	—	35	4,611	2	10
Bay	13	8	110,000	—	—	3	19	7	10
Total	531	446	11,393,439	292	1,300	38	4,630	9	20

Table 6—Fish kill summary by type of water

Type of water	Total number of reports	Reporting number of fish killed	
		Number of reports	Number of fish
Fresh	502	425	11,255,658
Salt	15	9	102,121
Estuary	14	12	35,660
Total	531	446	11,393,439

Table 7—Fish kill summary by month

Month	Total number of reports	Reporting number of fish killed	
		Number of reports	Number of fish
January	11	10	1,734,928
February	16	13	487,318
March	14	9	14,059
April	39	28	662,396
May	58	46	224,915
June	80	72	737,030
July	93	82	1,058,605
August	109	95	520,987
September	67	55	4,210,669
October	15	13	1,639,072
November	15	13	57,866
December	14	10	45,594
Total	531	446	11,393,439

Table 8—Fish kill summary by severity of kill

Severity	Number of reports	Reporting number of fish killed		Average size of kill [1]
		Number of reports	Number of fish	
Total kill	56	42	1,044,617	7,975
Heavy kill	139	115	6,366,765	7,810
Moderate kill	106	91	1,500,130	2,240
Light kill	103	90	59,930	665
Not stated	127	108	2,421,997	4,140
Total	531	446	11,393,439	4,310

[1] Average derived after exclusion of 16 reports of 100,000 or more.

Table 9—Distribution of duration by severity of kill

(Number of reports showing kills lasting indicated number of days)

Days	All reports	Total kill	Heavy kill	Moderate kill	Light kill	Not stated
<1	57	3	13	9	31	1
1	115	12	27	49	22	5
2	65	13	24	16	11	1
3	42	8	11	11	11	1
4	13	2	6	4	1	—
5	11	2	8	—	1	—
6	3	—	2	—	1	—
7	6	2	4	—	—	—
8	—	—	—	—	—	—
9	2	—	—	1	1	—
10	6	—	3	3	—	—
11	1	—	—	1	—	—
12	1	—	1	—	—	—
14	6	—	4	—	1	1
15	1	1	—	—	—	—
17	1	—	1	—	—	—
20	1	—	1	—	—	—
25	1	—	1	—	—	—
26	1	—	1	—	—	—
45	1	—	1	—	—	—
Total	334	43	108	94	80	9
Average	2.57	2.58	3.75	1.97	1.64	2.78

Table 10—Fish kill summary by degree of severity

Source of pollution	All reports	Total kill	Heavy kill	Moderate kill	Light kill	Not stated
Agricultural operations	107	8	33	35	17	14
Industrial operations	241	32	68	35	46	60
Municipal operations	135	9	27	24	29	46
Transportation operations	27	3	8	7	6	3
Other	21	4	3	5	5	4
Total	531	56	139	106	103	127
Percent of Responses						
Agricultural operations	100.0	7.5	30.8	32.7	15.9	13.1
Industrial operations	100.0	13.3	28.2	14.6	19.1	25.0
Municipal operations	100.0	6.6	20.0	17.8	21.5	34.1
Transportation operations	100.0	11.1	29.7	25.9	22.2	11.1
Other	100.0	19.0	14.4	23.8	23.8	19.0
Total	100.0	10.6	26.2	20.0	19.4	24.0

Table 11—Frequency distribution of reported duration of critical effects

(Number of reports showing kills lasting indicated number of days)

Days	All reports	Agri-cultural operations	Industrial operations	Municipal operations	Transportation operations	Other opera-tions
<1	57	6	28	16	4	3
1	115	37	43	26	4	5
2	65	18	22	19	2	4
3	42	11	15	12	3	1
4	13	3	5	2	3	—
5	11	2	8	1	—	—
6	3	1	2	—	—	—
7	5	—	5	—	1	—
8	—	—	—	—	—	—
9	2	—	1	1	—	—
10	6	3	2	1	—	—
11	1	1	—	—	—	—
12	1	—	—	—	1	—
14	6	—	2	2	2	—
15	1	—	1	—	—	—
17	1	—	1	—	—	—
20	1	—	1	—	—	—
25	1	—	1	—	—	—
26	1	—	1	—	—	—
45	1	—	—	1	—	—
Total	334	82	138	81	20	13
Average	2.57	2.17	2.99	2.10	3.90	1.38

PHS-3327-1
REV. 8-62

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

Form Approved
Budget Bureau No. 68-R706

(WASHINGTON USE)

REPORT OF POLLUTION-CAUSED FISH KILL

1. LOCATION:
   Stream or Lake _____
   Nearest Town _____ State _____

2. DATE OF KILL: _____

3. TYPE WATER:
   ☐ Fresh ☐ Salt ☐ Estuary

4. SOURCE OF POLLUTION

a. AGRICULTURAL OPERATIONS
- ☐ Poisons (Herbicides, pesticides, etc.)
- ☐ Fertilizers
- ☐ Manure drainage, ensilage liquors; or feed lot operations.

b. INDUSTRIAL OPERATIONS
- ☐ Mining
- ☐ Food & kindred products
- ☐ Paper & allied products.
- ☐ Chemicals
- ☐ Petroleum
- ☐ Metals
- ☐ Other (specify) _____

c. MUNICIPAL OPERATIONS
- ☐ Sewerage system
- ☐ Refuse disposal
- ☐ Water system
- ☐ Swimming pool

d. TRANSPORTATION OPERATIONS
- ☐ Rail ☐ Barge or boat
- ☐ Truck ☐ Pipeline

- ☐ e. OTHER _____
- ☐ f. UNKNOWN

(fold here)

g. SPECIFIC AGENT OR CAUSE, IF KNOWN: _____

5. TYPE OF FISH KILLED
   ____ % Game
   ____ % Non-game
   100 % Total
   ____ % Commercial

6. ESTIMATED NUMBER KILLED _____

7. SEVERITY:
   ☐ Total ☐ Heavy ☐ Moderate ☐ Light

8. EXTENT: Miles of stream or acres of lake affected _____

9. DURATION OF CRITICAL EFFECT: ____ days ____ hrs.

REPORTING OFFICIAL

AGENCY MAILING ADDRESS

DATE

10. ADDITIONAL REMARKS: (State circumstances of kill; any visible effects of the pollution on water, or other details)

Figure 1.

Report of Pollution-Caused Fish Kills

Cumulative Listing of Reports Received as of Date of Listing

OPERATIONS CODES

10 Agricultural Operations
- 11 Poisons (*Herbicides, Pesticides, etc.*)
- 12 Fertilizers
- 13 Manure, Silo, Feedlot Drainage, etc.

20 Industrial Operations
- 21 Mining
- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

30 Municipal Operations
- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

40 Transportation Operations
- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

90 Unknown (See next table, p. 26)

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL: MONTH	DAY	YEAR	OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED: PERCENT GAME	PERCENT FORAGE	PERCENT OF KILL CONSISTING OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY: TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)	ESTIMATED MILES OR ACRES AFFECTED	DURATION OF KILL AND EFFECT: DA	INV
ALABAMA																
TOWN CREEK	ATHENS	6	16	65	31	69%	31%		1,238				4	1M	9	-
VALLEY CREEK	BESSEMER	6	9	65	27	-	-	-	100				4	2M	1	-
VALLEY CREEK	BESSEMER	9	3	65	27	21%	79%		469,500		2			9A	2	-
CAHABA RIVER	CENTREVILLE	5	28	65	28	1%	99%	9%	5,745		2			7M	1	-
CHATTOOGA RIVER	GAYLESVILLE	3	14	65	28	-	-	-	-				4	-	-	-
BASSETT CREEK	JACKSON	2	11	65	23	-	-	-	-		2			-	-	-
TOMBIGBEE RIVER	MCINTOSH	5	18	65	24		100%	25%	87				4	8M	1	-
TOMBIGBEE RIVER	MCINTOSH	8	24	65	24	5%	95%	33%	648		2			-	-	-
RABBI CREEK	MOBILE	4	25	65	50	100%		-	110				4	1M	1	-
THREE MILE CREEK	MOBILE	5	28	65	22		100%	1%	1,249				4	1M	1	-
ALABAMA RIVER	MONTGOMERY	5	12	65	41	-	-	-	-				-	-	-	-
SOUGAHATCHEE CRK	NOTASULGA	7	26	65	28	17%	83%	-	-	1				26M	3	-
HIGH PINE CREEK	ROANOKE	8	16	65	31	6%	94%	12%	2,994		2			5M	2	-
BLACK WARRIOR RIV	TUSCALOOSA	4	26	65	29	3%	97%	97%	1,200			3		1M	1	-
ARKANSAS																
BELCO LAKE	BACK GATE	9	10	65	11	20%	80%	-	-		2			-	3	-
LOST CR-SALINE R	BENTON	9	18	65	21	25%	75%	25%	500			3		-	9	-
TURTLE CREEK	JONESBORO	8	10	65	24	-	-	3%	1,000	1		3		3M	3	-
LAKE CHICOT	LAKE VILLAGE	4	25	65	11	40%	60%	30%	-			3		3,000A	10	-
CALIFORNIA																
WEIST LAKE	CALIPATRIA	2	17	65	11	10%	90%	-	9,360			3		50A	10	-
JACKSON CREEK	JACKSON	6	18	65	35	100%		-	1,000				-	-	-	-
SUISUN BAY	MARTINEZ	7	21	65	25	95%	5%	-	91,000		2			2M	2	-
SHASTA LAKE-INLET	REDDING	2	18	65	42	10%	90%	-	10,000	1				41A	4	-
MAIN 100 DRAIN	RICHVALE	6	18	65	11	50%	50%	-	1,500				-	-	-	-
CACHUMA LAKE	SANTA BARBARA	4	29	65	33	1%	99%	-	600,600			3		1,000A	3	-
SMITH CANAL	STOCKTON	9	15	65	22		100%	-	-				-	-	-	-
YOSEMITE LAKE	STOCKTON	9	15	65	22		100%	-	1,000				-	-	-	-
LOS ANGELES HARB	WILMINGTON	8	2	65	25		100%	-	2,000				4	7A	-	-
LOS ANGELES HARB	WILMINGTON	8	12	65	25		100%	-	2,500				4	7A	-	-
CONNECTICUT																
PINE BROOK	HADDAM	4	6	65	26	100%		-	65		2			2M	-	-
INDIAN RIVER	MILFORD	7	15	65	27	20%	80%	-	-			3		-	-	-
GOODWIN PARK POND	WETHERSFIELD	4	9	65	30		100%	-	300		2			1A	-	-
WETHERSFIELD COVE	WETHERSFIELD	9	13	65	31		100%	-	1,000,000		2			100A	2	-
KETTLE BROOK	WINDSOR LOCKS	8	19	65	27	100%		-	13,071		2			1M	-	9
DELAWARE																
LITTLE CREEK	LITTLE CREEK	4	25	65	28		100%	100%	10,000	1				-	-	-
BROADKILL RIVER	MILTON	4	30	65	11	-	-	-	-	1				1M	-	-
FLORIDA																
ALAFIA RIVER	BRANDON	2	5	65	21	50%	50%	-	30,000	1				12M	2	-
WITHLACOOCHEE RIV	DADE CITY	2	9	65	22	50%	50%	-	15,000		2			16M	5	-
LAKE LUCERNE WEST	ORLANDO	8	10	65	42	44%	56%	-	115				4	-	-	-

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL			OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED		PERCENT OF KILL CONSISTING OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY				ESTIMATED MILES OR ACRES AFFECTED	DURATION OF TOXICAL EFFECT	
		MONTH	DAY	YEAR		PERCENT GAME	PERCENT FORAGE			TOTAL (13)	HEAVY (12)	MODERATE (11)	LIGHT (10)		DA	HR
GEORGIA																
BARNETT CREEK	BRUNSWICK	7	22	65	24	-	-	-	-	1				5M	-	-
TIRED CREEK	CAIRO	8	20	65	22	50%	50%	-	-	1				11M	2	-
TOWLAGIA RIVER	GRIFFIN	8	6	65	28	50%	50%	-	-		2			6M	-	-
LITTLE OCONEE RIV	JEFFERSON	7	26	65	28	50%	50%	-	5,000		2			-	1	-
INDIAN CREEK	MOULTRIE	5	11	65	28	-	-	-	-	1				-	1	-
OCHLOCKNEE RIVER	MOULTRIE	5	19	65	22	-	-	-	-	1				2M	1	-
CANOOCHEE RIVER	SWAINSBORO	5	21	65	28	-	-	-	-		2			10M	2	-
CHATTOOGA RIVER	TRION-SUMMERVILLE	6	27	65	28	50%	50%	-	-	1				20M	2	-
HAWAII																
KALAUAO STREAM	AIEA	6	8	65	11	5%	95%	-	1,000	1				1M	2	-
IDAHO																
BOWEN CREEK	ORIDOS	4	27	65	22	100%		-	1,250		2			1M	-	4
ILLINOIS																
FOX RIVER	CARPENTERSVILLE	7	7	65	31	22%	78%	88%	231				4	1M	1	-
KOOSTENENS LAKE	COLUMBIA	9	11	65	32	100%		-	15,856	1				10A	2	-
KICKAPOO CREEK	DUNLAP-EDELSTEN	8	27	65	13	50%	50%	17%	336		2			8M	3	-
DEER CR-DR-FLM R	FAIRFIELD	7	20	65	25		100%	91%	659		2			1M	-	-
JORDAN CREEK	FAIRMOUNT	1	9	65	24	1%	99%	-	157,145		2			6M	2	-
SALT CREEK	FARMER CITY	11	6	65	35	12%	88%	4%	16,039				4	5M	-	-
KANDAMON RIVER EX	KINCAID	8	10	65	44	72%	28%	51%	146,902		2			23M	7	-
LAKE FORK	LATHAM	6	12	65	42	36%	64%	100%	6,304			3		6M	1	-
SUGAR CREEK	MILFORD-WATSEKA	7	3	65	22	30%	70%	25%	41,833		2			12M	7	4
KANDAMON RIVER	MOUNT AUBURN	8	3	65	31	52%	48%	38%	60,185		2			15M	1	-
PRAIRE CREEK	PRINCEVILLE	8	20	65	22	8%	92%	10%	5,627		2			7M	2	-
KISHWAUKEE R-N RI	WOODSTOCK	8	21	65	11	29%	71%	15%	1,296		2			3M	2	-
NIPPERSINK CREEK	WOODSTOCK	6	5	65	24		100%	100%	556		2			-	14	-
INDIANA																
BLACK CREEK	FRANKFORT-ULEP	6	23	65	12	1%	99%	-	2,000		2			5M	-	12
SAINT MARYS RIVER	FORT WAYNE	7	16	65	31	10%	90%	-	600			3		2M	2	-
DEER CREEK	GALVESTON	9	9	65	22	1%	99%	-	700				4	3M	1	-
COAL CREEK	HILLSBORO	5	16	65	42		100%	-	750			3		1M	1	-
WHITE RIVER	MARTINSVILLE	7	27	65	31	1%	99%	-	18,000			3		5M	1	12
WHITE RIVER	MARTINSVILLE	9	17	65	31	5%	95%	-	5,000			3		5M	1	-
UNNAMED CREEK	MUNCIE	9	20	65	13		100%	-	1,000			3		3M	1	-
WHITE RIVER	MUNCIE	8	10	65	31		100%	-	750	1				3M	5	-
EEL RIVER	NORTH MANCHESTER	6	28	65	26	1%	99%	-	15,000			3		7M	1	-
MUSCATATUCK RIVER	NORTH VERNON	6	9	65	31	25%	75%	-	1,000		2			3M	3	-
PAN PAW CREEK	PERU	5	16	65	11	80%	20%	-	25,000		2			3M	1	-
SILVER CREEK	SELLERSBURG	7	14	65	31	5%	95%	-	2,500		2			3M	1	-
CHAIN OF LAKES	SOUTH BEND	6	13	65	30	95%	5%	-	9,000		2			2A	-	12
EAGLE CREEK	SPEEDWAY	7	20	65	31	1%	99%	-	500				4	1M	-	12
EAGLE CREEK	SPEEDWAY	9	7	65	50		100%	-	1,000			3		1M	1	-
REDWOOD CREEK	WEST TERRACE	7	17	65	11	5%	95%	-	2,200		2			3M	1	-

OPERATIONS CODES

10 Agricultural Operations
- 11 Poisons (*Herbicides, Pesticides, etc.*)
- 12 Fertilizers
- 13 Manure, Silo, Feedlot Drainage, etc.

20 Industrial Operations
- 21 Mining
- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

30 Municipal Operations
- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

40 Transportation Operations
- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

90 Unknown (See next table, p. 20.)

Report of Pollution-Caused Fish Kills (Continued)

Cumulative Listing of Reports Received as of Date of Listing

OPERATIONS CODES

- 10 **Agricultural Operations**
  - 11 Poisons (*Herbicides, Pesticides, etc.*)
  - 12 Fertilizers
  - 13 Manure, Silo, Feedlot Drainage, etc.
- 20 **Industrial Operations**
  - 21 Mining
  - 22 Food & Kindred Products
  - 23 Paper & Allied Products
  - 24 Chemicals
  - 25 Petroleum
  - 26 Metals
  - 27 Combinations
  - 28 Other
- 30 **Municipal Operations**
  - 31 Sewerage System
  - 32 Refuse Disposal
  - 33 Water System
  - 34 Swimming Pool
  - 35 Power
- 40 **Transportation Operations**
  - 41 Rail
  - 42 Truck
  - 43 Barge or Boat
  - 44 Pipe Line
- 50 **Other Operations**
- 90 **Unknown** (See next table, p. 26)

River or Lake Affected	Nearest Town or City	Date of Kill: Month	Day	Year	Operations Indicated as Responsible for Kill (See Codes Below)	Type of Fish Killed: Percent Game	Percent Forage	Percent of Fish Kill Which Was of Commercial Value	Estimated Number of Fish Killed	Severity: Total (1)	Heavy (2)	Moderate (3)	Light (4)	Estimated Miles or Acres Affected	Duration of Critical Effect: Days	Hours
IOWA																
CORALVILLE RESVR	CORALVILLE	2		65	23	10%	90%	-	400,000		2			-	-	-
TURKEY RIVER	CRESCO	4	19	65	21	20%	80%	-	200				4	-	-	-
BLACKHAWK CREEK	DIKE	6	11	65	24	30%	70%	-	-		2			3M	-	2
NORTH RACCOON RIV	LAKESIDE CITIES	1	14	65	91	10%	90%	-	200,000		2			6M	6	-
WALNUT CREEK	RIDGEWAY	6	9	65	22	20%	80%	-	1,000	1				-	-	-
TURKEY RIVER	SCHLEY	5	17	65	22	60%	40%	-	200		2			-	-	-
STORM LAKE STREAM	STORM LAKE	6	16	65	12	5%	95%	-	150				4	-	-	-
KANSAS																
BRUSH CREEK	COLUMBUS	1	1	65	22	10%	90%	20%	1,500			3		2M	2	-
ARKANSAS RIVER	DODGE CITY	6	7	65	19	10%	90%	65%	500,000			3		75M	3	-
SPRING CREEK	FAIRVIEW	6	6	65	19	20%	80%	60%	45,000		2			3M	5	-
THIR NINNESCAH R	NATRONA	6	7	65	19	10%	90%	20%	20,000		2			6M	2	-
GOOSEBERRY CREEK	NEWTON	5	17	65	19	60%	40%	75%	1,000	1				2M	2	-
LABETTE CREEK	PARSONS	8	15	65	19	10%	90%	15%	3,000		2			1M	2	-
KENTUCKY																
HARRODS CREEK	LA GRANGE	9	10	65	91	20%	80%	17%	-	1				3M	2	-
LOUISIANA																
BAYOU DE CAILLOU	ASHLAND	7	12	65	11	10%	90%	-	9,000		2			6M	2	-
BAYOU CHEVREUIL	CHAC PAY	8	20	65	11	20%	80%	-	2,750		2			2M	1	-
BUTTE LAKE	COLUMBIA	4	15	65	11	20%	80%	-	4,500		2			15A	-	-
CA TOR CREEK	COTTON PLANT	6	30	65	11	10%	90%	-	1,250			3		2M	1	-
HOUMA NAV CANAL	DULAC	7	22	65	22	5%	95%	-	-			3		1M	2	-
COMPANY CANAL	GHENS	6	17	65	11	10%	90%	-	3,000		2			6M	2	-
BLIND RIVER	GRAMERCY	8	23	65	11	20%	80%	-	1,250			3		2M	1	-
BAYOU TERREBONNE	HOUMA	7	12	65	11	10%	90%	-	2,250			3		2M	1	-
BAYOU PREVOST	HOUMA	8	11	65	11	10%	90%	-	250			3		1M	1	-
BAYOU BLACK	HOUMA	8	23	65	11	20%	80%	-	1,250			3		2M	1	-
JEANERETTE CANAL	JEANERETTE	6	30	65	11	10%	90%	-	2,000		2			2M	2	-
BLACK BAYOU	LAKE CHARLES	6	18	65	11	5%	95%	-	7,500		2			2M	2	-
BAYOU LACASSINE	MIRLETT	4	26	65	11	5%	95%	-	3,500			3		1M	1	-
GRAND BAYOU	PIERRE PASS	7	13	65	11	20%	80%	-	10,000		2			9M	1	-
LITTLE BAYOU DIP	PIERRE PASS	7	13	65	11	10%	90%	-	2,500		2			1M	1	-
LAKE NATCHEZ	PITKIN	8	23	65	11	20%	80%	-	550			3		3A	1	-
BAYOU TERREBONNE	PRESQUE ISLE	6	27	65	11	10%	90%	-	2,500			3		1M	1	-
BAYOU BOEUF	RACELAND	7	21	65	11	10%	90%	-	2,500		2			2M	1	-
LAKE BOEUF	RACELAND	7	21	65	11	10%	90%	-	1,250			3		6A	1	-
TAN FORETS CANAL	RACELAND	7	21	65	11	5%	95%	-	500			3		1M	1	-
THIBOT CANAL	RACELAND	7	21	65	11	5%	95%	-	500			3		2M	1	-
FARM POND	RAYVILLE	5	1	65	11	60%	40%	-	500			3		2A	1	-
TERREBONNE DR CAN	THIBODAUX	8	19	65	11	10%	90%	-	1,250			3		2M	1	-
RED RIVER	SHREVEPORT	8	18	65	42	20%	80%	-	32,500		2			17M	2	-
TWELVE MILE BAYOU	SHREVEPORT	11	13	65	91	5%	95%	60%	500		2			5M	2	-
EIGHTH ARPENT CAN	ST CHARLES PARH	8	3	65	11	10%	90%	-	2,250		2			2M	2	-
BAYOU DU LARGE	THEODOT	7	7	65	11	5%	95%	-	2,500			3		2M	1	-
BAYOU DU LARGE	THEODOT	8	11	65	11	-	-	-	750			3		1M	1	-
BAYOU L UNION	THIBODAUX	8	10	65	11	10%	90%	-	750			3		2M	1	-
GRAND BAYOU	THIBODAUX	8	19	65	11	10%	90%	-	750			3		2M	1	-
LAFOURCHE DR CAN	THIBODAUX	7	21	65	11	10%	90%	-	500			3		2M	1	-
BRAMEL CANAL	VATHERLY	8	19	65	11	15%	85%	-	1,250		2			-	1	-
WATERPROOF CANAL	WATERPROOF	6	20	65	11	20%	80%	-	3,500		2			9M	1	-
BAYOU TIGRE	WHITE CASTLE	8	23	65	11	10%	90%	-	1,250		2			2M	1	-
JOE MIRE CANAL	WHITE CASTLE	8	23	65	11	10%	90%	-	850					2M	1	-

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL: MONTH	DAY	YEAR	OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED: PERCENT GAME	PERCENT FORAGE	PERCENT OF KILL PLACED AT ZERO COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY: TOTAL	HEAVY	MODERATE	LIGHT	ESTIMATED MILES OR ACRES AFFECTED	DURATION OF CRITICAL EFFECT: HA	HB
MAINE																
ARROWTOOK RIVER	ASHLAND	8	17	65	11		100%	-	1,000			3		1M	1	-
KENNEBEC RIVER	AUGUSTA	6		65	23	25%	75%	-	-		2			30M	25	-
ANDROSCOGGIN RIV	JAY	6	29	65	28		100%	-	10,000				-	-	-	-
PENOBSCOT RIVER	LINCOLN	8	12	65	23	2%	98%	-	1,000		2			10M	6	-
MILLINOCKETT ST	MILLINOCKETT	7	10	65	41	1%	99%	-	-			3		1M	4	-
MARYLAND																
PATAPSCO RIVER	BALTIMORE CO	8	31	65	24	-	-	-	2,000				-	6A	-	-
SEVERN RUN	ODENTON	6	6	65	20	-	-	-	31,200		2			6M	-	-
CHOPTANK RIVER	RIDGELY	8	8	65	22	-	-	-	-				-	-	-	-
CHARTICO BAY	SAINT MARYS CO	7	16	65	11	-	-	-	-				-	-	-	-
MASSACHUSETTS																
BROAD BROOK	EASTHAMPTON	6	8	65	50	100%		-	50				6	-	1	-
MERRIMACK RIVER	LAWRENCE	9	15	65	31		100%	-	500			3		5M	1	-
HALEY POND	MARLBOROUGH	7	9	65	31		100%	-	2,000		2			-	1	-
CHICOPEE BROOK	MONSON	9	2	65	28	75%	25%	-	300		2			1M	1	-
OXBOW POND	NORTHAMPTON	6	1	65	50	-	-	-	1,000		2			-	3	-
NASHUA RIVER	PEPPERELL	6	30	65	23	10%	90%	-	7,000		2			-	4	-
TOWN BROOK	QUINCY	4	30	65	24		100%	-	2,000		2			-	7	-
MICHIGAN																
CASS RIVER	CARO	11	15	65	22	3%	97%	-	210				6	-	6	-
KEARSLEY CREEK	DAVISON	7	13	65	11	36%	64%	-	700				-	-	2	-
NEW GRONINGEN CR	HOLLAND TWP	8	18	65	24		100%	-	100				6	-	1	-
SQUAW CREEK	MARSHALL	10	6	65	13	20%	80%	-	550				6	-	-	-
KAWKAWLIN RIV NO	MIDLAND	8	26	65	11	33%	67%	-	165				6	1M	2	-
KIPA CREEK	TRAVERSE CITY	6	6	65	11	100%		-	250				6	-	-	-
BLACK RIVER	ZEELAND	5	16	65	31	16%	84%	-	4,479				6	3M	2	-
MINNESOTA																
BLUE EARTH RIVER	BLUE EARTH	9	4	65	22	10%	90%	-	-		2			10M	6	-
SAINT LOUIS RIVER	CLOQUET	8	16	65	23		100%	-	1,000		2			1M	1	-
CENTER CREEK	FAIRMONT	9	6	65	22	10%	90%	-	-	1				15M	7	-
LINDSTROM CREEK	FINLAND	7	9	65	32	100%		-	1,000		2			2M	2	-
MISSISSIPPI																
PEARL RIVER	CARTHAGE	8	20	65	11	-	-	-	-			3		-	6	-
BIG CRK-LEAF RIV	ASKO	7	10	65	25	20%	80%	-	-		2			30M	3	-
MISSOURI																
CEDAR CREEK	ASHLAND	7	13	65	21	25%	75%	-	5,500		2			10M	5	-
RUG POND	BOONESBORO	6	12	65	11	100%		-	2,000		2			1A	5	-
SWEETWATER CREEK	ELLINGTON	7	11	65	21	20%	80%	-	-		2			4M	14	-
CENTER CREEK	JOPLIN	12	17	65	24	30%	70%	-	9,500	1				11M	-	-
BUFFALO CREEK	LOUISIANA	5	4	65	24	-	-	-	-		2			-	5	-
A P GREEN LAKE	MEXICO	5	29	65	22	75%	25%	-	3,000		2			30A	10	-
SALT RIVER	MEXICO	7	28	65	31	20%	80%	-	2,000		2			2M	-	-

OPERATIONS CODES

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- 13 Manure, Silo, Feedlot Drainage, etc.

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- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

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- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

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- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

60 Unknown (See next table, p. 26)

Report of Pollution-Caused Fish Kills (Continued)

Cumulative Listing of Reports Received as of Date of Listing

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MISSOURI - [illegible]																
SHOAL CREEK	NEOSHO	2	22	65	31	5%	95%	-	2,000			3		2M	1	-
L DRYWOOD TRIB	NEVADA	11	10	65	31	20%	80%	-	250			3		1M	3	-
SWAN CREEK	RICH FOUNTAIN	10	16	65	13	10%	90%	-	1,200		2			3M	3	-
WHITTENBURG CREEK	STEELVILLE	5	26	65	28	60%	40%	-	5,000		2			2M	-	-
SPRING CREEK	SULLIVAN	4	18	65	41	10%	90%	-	1,000		2			5M	14	-
TWO MILE CREEK	THAYER	3	10	65	28	25%	75%	-	11,000		2			1M	1	-
MONTANA																
SPRING CREEK	CHOTEAU	2	19	65	11	90%	10%	-	400			3		3M	11	-
O'KEEFE CREEK	FRENCHTOWN	7	16	65	50	20%	80%	-	500	1				2M	1	-
LITTLE ROCKY CR	NYE	9	7	65	11	100%		-	500		2			3M	10	-
NEBRASKA																
GEORGE AHLERS POND	BELGRADE	8	20	65	41	85%	15%	-	400				4	3A	14	-
BARTLETT FARM POND	ELLIS	4		65	13		100%	-	1,000		2			-	-	-
TURKEY CREEK	GENEVA	12	11	65	31	50%	50%	-	23,232				1	4M	14	-
STEINHARDT PK LK	NEBRASKA CITY	4		65	30		100%	-	-			3		-	10	-
BIG BLUE RIVER	SEWARD	5	4	65	24	75%	25%	-	8,000		2			5M	-	12
TWO RIVER CARP LK	VALLEY	5	3	65	12		100%	-	200			3		-	3	-
LOGAN CREEK	WAKEFIELD	8	17	65	31	5%	95%	-	5,000		2			15M	2	-
NEW HAMPSHIRE																
MERRIMACK RIVER	CONCORD	9	15	65	31	30%	70%	-	800			3		3M	2	-
MERRIMACK RIVER	MANCHESTER	8	18	65	31		100%	-	10,000		2			5M	1	-
MERRIMACK RIVER	NASHUA	8	18	65	31		100%	-	2,000			3		2M	1	-
BLAISDELL LAKE	SUTTON	7	6	65	30	80%	20%	-	150				4	-	3	-
SOUHEGAN RIVER	WILTON-MILFORD	8	16	65	28	-	-	-	-				4	1M	-	12
NEW JERSEY																
INTERCOASTAL WWAY	ATLANTIC CITY	8	23	65	31	75%	25%	75%	100				4	1M	3	-
METEDECONK RIVER	BRICK TWP	8	1	65	20		100%	-	1,000		2			1M	2	-
CHEESEQUAKE PK LK	CHEESEQUAKE	9	6	65	30		100%	-	3,000		2			4A	2	-
LAWRENCE BROOK	DEANS	3	27	65	42	10%	90%	-	300			3		-	-	-
DELAWARE RIVER	FIELDSBORO	5	17	65	24		100%	-	100				4	1M	-	-
TRIB S BR RARITAN	FLANDERS	11	24	65	31	100%		-	100	1				1M	1	-
SECOND NEHANIC R	FLEMINGTON	8	11	65	22		100%	-	20				4	1M	-	12
BRAINBURN POND	FLORHAM PARK	5	28	65	34		100%	-	500		2			5A	4	-
ST FISH HATCHERY	HACKETTSTOWN	2	15	65	26	98%	2%	-	18,000		2			-	1	-
IMLAYSTOWN LAKE	IMLAYSTOWN	8	21	65	11	5%	95%	-	810		2			10A	-	-
LITTLE SILVER CR	LITTLE SILVER	8	9	65	11		100%	-	2,000		2			30A	6	-
RARITAN RIVER	MANVILLE	6	30	65	31		100%	-	100			3		-	-	-
NIXONS POND	MOUNTAIN LAKES	7	12	65	42		100%	-	500		2			1A	3	-
TOMS RIVER	OCEAN GATE	8	1	65	31		100%	-	3,000		2			2M	2	-
DELAWARE RIVER	PAULSBORO	5	14	65	28	10%	90%	-	2,000			3		-	-	-
DELAWARE RIVER	PAULSBORO	5	20	65	27		100%	-	1,000			3		10M	-	-
GREENBROOK	PLAINFIELD	6	2	65	27		100%	-	50				5	1M	1	-
SMITH CREEK	SEWAREN	2	16	65	44		100%	-	15				4	2A	4	-
COBYS BROOK	STIRLING	10	-	65	50		100%	-	10				4	-	-	-
SWANS LAKE	SWEDESBORO	7	14	65	11	40%	60%	-	2,000	1				10A	1	-
WARRINGTN MILL LK	SWEDESBORO	7	9	65	11	10%	90%	-	30			3		20A	1	-
TOMS RIVER	TOMS RIVER	8	20	65	27		100%	-	5,000			3		1M	-	-
RR BIG LEBANON CR	TURNERSVILLE	7	26	65	22	55%	45%	-	420			3		1M	2	-

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL			OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED		PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY				ESTIMATED MILES OR ACRES AFFECTED	DURATION OF CRITICAL EFFECT	
		MONTH	DAY	YEAR		PERCENT GAME	PERCENT FORAGE			TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)		DA	HR
NEW JERSEY -CONT-																
REQUEST RIVER	VIENNA	11	24	65	24	1%	99%	-	7,500	1				8M	1	-
KINNEY BROOK	WATCHUNG	4	20	65	50		100%	-	200			3		2M	-	-
GREAT SWAMP BRNCH	WINSLOW TWP	7	9	65	11	10%	90%	-	6,000		2			-	1	12
WOODBURY CREEK	WOODBURY	5	13	65	31		100%	-	100			3		-	1	-
NEW YORK																
GOLDEN HILL CREEK	BARKER	7	4	65	22		100%	-	1,000		2			-	1	-
LITTLE HOOSIC RIV	BERLIN	6	11	65	28	50%	50%	-	38				4	1M	-	2
BROCKPORT CREEK	BROCKPORT	6	5	65	28	2%	98%	-	9,000	1				-	1	-
SPRING CREEK	CALEDONIA	1	23	65	25	100%		-	200,000			3		-	3	-
MILL-CANASERGA CR	DANSVILLE	9	20	65	28		100%	-	10,000		2			2M	-	-
SANDBURG CREEK	ELLENVILLE	7	30	65	50	10%	90%	-	1,000	1				3M	-	-
ROCK SPRINGS BR	FRANKLINVILLE	6	18	65	11		100%	-	24			3		1M	-	2
KEUKA INLET	HAMMONDSPORT	9	24	65	22		100%	-	35	1				-	-	-
CADOSIA CREEK	HANCOCK	6	30	65	50	10%	90%	-	1,000		2			2M	-	-
OSWEGATCHIE RIVER	HEUVELTON	7	22	65	22	10%	90%	-	7,500		2			2M	-	-
JOHNSON CREEK	MIDDLEPORT	6	24	65	24		100%	-	15,000	1				12M	-	-
GENESEE RIVER	MOUNT MORRIS	7	8	65	22	10%	90%	-	1,500			3		1M	-	-
BRONX RIVER	N WHITE PLAINS	6	29	65	21	5%	95%	-	750			3		2M	-	-
BULL CREEK	NORTH TONAWANDA	5	5	65	26	5%	95%	-	9,000	1				2M	7	-
OAK ORCHARD CREEK	OAKFIELD	7	13	65	22		100%	-	3,000	1				-	2	-
OLEAN CREEK	OLEAN	7	20	65	20	7%	93%	-	10,000	1				2M	2	-
RED CREEK	RED CREEK	7	25	65	22	-	-	-	-	1				3M	-	-
SUSQUEHANNA RIVER	SIDNEY	8	19	65	31	5%	95%	-	12,500	1				2M	1	-
UNADILLA RIVER	SOUTH EDMESTON	8	31	65	22	10%	90%	-	12,500		2			2M	-	4
EAST KILL CREEK	TANNERSVILLE	6	12	65	50	10%	90%	-	1,000		2			-	-	-
W BR DELAWARE RIV	WALTON	8	18	65	22	10%	90%	-	5,000		2			-	2	-
OATKA CREEK	WARSAW	6	23	65	28		100%	-	10,000		2			1M	-	-
SENECA RIVER	WATERLOO	8	14	65	31	1%	99%	-	15,000		2			2M	-	12
SENECA RIVER	WATERLOO	9	27	65	31	2%	98%	-	7,500		2			1M	-	-
CAYUTA CREEK	WAVERLY	7	2	65	31	10%	90%	-	300				-	1M	-	-
NORTH CAROLINA																
LIVINGSTON CREEK	FREEMAN	9	3	65	12	90%	10%	-	347			3		1M	-	-
ST ANDREWS COL LK	LAURINBURG	7	12	65	11	100%		-	20,000		2			75A	4	-
YADKIN RIVER	PATTERSON	8	20	65	23	5%	95%	-	180				4	7M	-	12
WIGGINS LAKE	ROCKY MOUNT	7	24	65	11	100%		-	250				4	60A	1	-
TOWN CREEK	SALISBURY	12	2	65	27	57%	43%	-	1,260			3		-	-	-
PALEN CREEK	WEEKSVILLE	6	13	65	26	30%	70%	-	750				4	1M	1	-
OHIO																
BLACK FK-MOHICN R	ASHLAND CO	6	30	65	26	-	-	-	226				-	-	-	-
MANSER PONDS	ASHTABULA CO	11	11	65	22	-	-	-	10,775				-	-	-	-
MIAMI RIVER	BUTLER CO	7	3	65	23	-	-	-	22,472				-	-	-	-
MIAMI RIVER	BUTLER CO	9	2	65	23	-	-	-	53,804				-	-	-	-
BIG SANDY CREEK	CARROLL CO	8	19	65	31	-	-	-	2,205				-	-	-	-
BIG SANDY CREEK	CARROLL CO	9	20	65	31	-	-	-	18				-	-	-	-
SANDY CREEK	CARROLL CO	6	4	65	31	-	-	-	21				-	-	-	-
TWELVE-MILE CREEK	COSHOCTON CO	8	8	65	25	-	-	-	215				-	-	-	-
OLENTANGY RIVER	CRAWFORD CO	7	30	65	31	-	-	-	532				-	-	-	-
ROCKY RIVER	CUYAHOGA CO	5	25	65	31	-	-	-	1,546				-	-	-	-
ROCKY RIVER	CUYAHOGA CO	8	17	65	31	-	-	-	353				-	-	-	-
PRAIRIE RUN	DELAWARE CO	5	6	65	22	-	-	-	5				-	-	-	-

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OHIO -CONT-																
SCIOTO RIVER	DELAWARE CO	8	31	65	31	-	-	-	707				-	-	-	-
PIPE CREEK	ERIE CO	9	15	65	22	-	-	-	394				-	-	-	-
PLEASANT RUN	FAIRFIELD CO	12	17	65	22	-	-	-	180				-	-	-	-
SYCAMORE CREEK	FAIRFIELD CO	9	5	65	22	-	-	-	36,940				-	-	-	-
SCIOTO RIVER	FRANKLIN CO	5	23	65	31	-	-	-	13,314				-	-	-	-
SCIOTO RIVER	FRANKLIN CO	8	18	65	31	-	-	-	1,049				-	-	-	-
WEST BR DEER CRK	FULTON CO	10	7	65	13	-	-	-	2,004				-	-	-	-
BLACKFORK CREEK	GALLIA CO	7	10	65	21	-	-	-	73				-	-	-	-
LITTLE MIAMI RIV	GREENE CO	5	27	65	31	-	-	-	15,649				-	-	-	-
LITTLE MIAMI RIV	GREENE CO	6	11	65	31	-	-	-	63				-	-	-	-
FLAT RUN	GUERNSEY CO	9	3	65	24	-	-	-	20				-	-	-	-
LEATHERWOOD CREEK	GUERNSEY CO	8	29	65	21	-	-	-	154				-	-	-	-
BLANCHARD RIVER	HANCOCK CO	8	2	65	31	-	-	-	720				-	-	-	-
BLANCHARD RIVER	HANCOCK CO	10	17	65	31	-	-	-	1,245,374				-	-	-	-
HOG CREEK	HARDIN CO	7	25	65	11	-	-	-	274				-	-	-	-
SCIOTO RIVER	HARDIN CO	9	25	65	31	-	-	-	618				-	-	-	-
LIT STILLWATER CR	HARRISON CO	7	25	65	21	-	-	-	164				-	-	-	-
DODSON FORK	HIGHLAND CO	5	29	65	13	-	-	-	3,549				-	-	-	-
PAINT CREEK	HIGHLAND CO	5	6	65	31	-	-	-	1,123				-	-	-	-
PAINT CREEK	HIGHLAND CO	6	6	65	31	-	-	-	1,123				-	-	-	-
PAINT CREEK	HIGHLAND CO	7	1	65	31	-	-	-	2,263				-	-	-	-
TURTLE CREEK	HIGHLAND CO	6	10	65	28	-	-	-	4				-	-	-	-
TURTLE CREEK	HIGHLAND CO	8	27	65	31	-	-	-	105				-	-	-	-
WHITE OAK CREEK	HIGHLAND CO	6	24	65	24	-	-	-	643				-	-	-	-
HOCKING RIVER	HOCKING CO	7	11	65	21	-	-	-	1,189				-	-	-	-
HOCKING RIVER	HOCKING CO	7	24	65	21	-	-	-	44,000				-	-	-	-
OLD TOWN CREEK	HOCKING CO	5	3	65	25	-	-	-	52				-	-	-	-
DOUGHTY CREEK	HOLMES CO	5	17	65	22	-	-	-	179				-	-	-	-
SUGAR CREEK	HOLMES CO	7	21	65	22	-	-	-	330				-	-	-	-
SUGAR CREEK	HOLMES CO	9	22	65	22	-	-	-	972				-	-	-	-
BLACKFORK CREEK	JACKSON CO	9	5	65	31	-	-	-	131				-	-	-	-
LITTLE SALT CREEK	JACKSON CO	8	22	65	21	-	-	-	22				-	-	-	-
SYMMES CREEK	JACKSON CO	6	15	65	21	-	-	-	14				-	-	-	-
FLAT RUN DITCH	KNOX CO	7	7	65	25	-	-	-	82				-	-	-	-
KOKOSING RIVER	KNOX CO	9	8	65	24	-	-	-	12,422				-	-	-	-
LAKE ERIE	LAKE CO	7	22	65	35	-	-	-	4,022				-	-	-	-
MAUMEE RIVER	LUCAS CO	10	8	65	31	-	-	-	361,418				-	-	-	-
SPRING FORK CREEK	MADISON CO	5	26	65	13	-	-	-	22,255				-	-	-	-
SPRING FORK CREEK	MADISON CO	7	10	65	13	-	-	-	1,956				-	-	-	-
SPRING FORK CREEK	MADISON CO	8	9	65	13	-	-	-	3,821				-	-	-	-
BRANCH BEAVER CRK	MAHONING CO	9	9	65	21	-	-	-	1,312				-	-	-	-
ISLELAND CREEK	MAHONING CO	6	10	65	13	-	-	-	20				-	-	-	-
TRIB MEANDER CRK	MAHONING CO	1	11	65	21	-	-	-	1,644				-	-	-	-
TRIB INDIAN RUN C	MAHONING CO	8	2	65	21	-	-	-	1,206				-	-	-	-
RIFFLE CREEK	MARION CO	5	15	65	24	-	-	-	739				-	-	-	-
ROCKY RIVER	MEDINA CO	7	1	65	31	-	-	-	353				-	-	-	-
MIAMI RIVER	MIAMI CO	1	27	65	26	-	-	-	5,407				-	-	-	-
MIAMI RIVER	MIAMI CO	6	30	65	31	-	-	-	15				-	-	-	-
MIAMI RIVER	MIAMI CO	8	29	65	31	-	-	-	12,007				-	-	-	-
MIAMI RIVER	MONTGOMERY CO	7	28	65	31	-	-	-	1,420				-	-	-	-
MIAMI RIVER	MONTGOMERY CO	8	20	65	35	-	-	-	11,250				-	-	-	-
KOKOSING RIVER	MORROW CO	12	21	65	13	-	-	-	1,268				-	-	-	-
BIG RUN CREEK	MUSKINGUM CO	7	13	65	50	-	-	-	371				-	-	-	-
DILLON LAKE	MUSKINGUM CO	2	18	65	25	-	-	-	1,645				-	-	-	-
MUSKINGUM RIVER	MUSKINGUM CO	9	13	65	21	-	-	-	1,341				-	-	-	-
CRANE CREEK	OTTAWA CO	9	10	65	22	-	-	-	278,988				-	-	-	-
JONATHAN CREEK	PERRY CO	8	12	65	21	-	-	-	7,500				-	-	-	-
MILLERS FORK	PREBLE CO	8	19	65	11	-	-	-	769				-	-	-	-
SEVEN MILE CREEK	PREBLE CO	5	29	65	31	-	-	-	1,962				-	-	-	-
SEVEN-MILE CREEK	PREBLE CO	12	2	65	31	-	-	-	8,474				-	-	-	-

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL			OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED		PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY				ESTIMATED MILES OR ACRES AFFECTED	DURATION OF CRITICAL EFFECT	
		MONTH	DAY	YEAR		PERCENT GAME	PERCENT FORAGE			TOTAL (T)	HEAVY (H)	MODERATE (M)	LIGHT (L)		DA	HR
OHIO -CONT-																
TRIB BLANCHARD R	PUTNAM CO	9	13	65	13	-	-	-	1,627				-	-	-	-
SCIOTO RIVER	ROSS CO	5	30	65	23	-	-	-	1,704				-	-	-	-
SANDUSKY RIVER	SANDUSKY CO	9	10	65	31	-	-	-	105,522				-	-	-	-
HALES CR-BRADY RN	SCIOTO CO	6	9	65	21	-	-	-	46				-	-	-	-
MILLERS RUN	SCIOTO CO	9	14	65	11	-	-	-	1,234				-	-	-	-
PINE CREEK	SCIOTO CO	6	7	65	21	-	-	-	15				-	-	-	-
SANDUSKY RIVER	SENECA CO	7	24	65	31	-	-	-	4,833				-	-	-	-
SANDUSKY RIVER	SENECA CO	8	16	65	31	-	-	-	906				-	-	-	-
NIMISHILLEN CREEK	STARK CO	8	24	65	22	-	-	-	403				-	-	-	-
SIPPO CREEK	STARK CO	9	17	65	22	-	-	-	24				-	-	-	-
LITTLE CUYAHOGA R	SUMMIT CO	7	7	65	26	-	-	-	256				-	-	-	-
SUMMIT LAKE	SUMMIT CO	11	9	65	28	-	-	-	1,827				-	-	-	-
MILL CREEK	UNION CO	7	12	65	31	-	-	-	4,699				-	-	-	-
LITTLE AUGLAIZE R	VAN WERT CO	11	15	65	44	-	-	-	14,533				-	-	-	-
LAKE HOPE	VINTON CO	3	2	65	21	-	-	-	135				-	-	-	-
TURTLE CREEK	WARREN CO	7	11	65	31	-	-	-	2,137				-	-	-	-
DUCK CREEK	WASHINGTON CO	5	21	65	22	-	-	-	1,611				-	-	-	-
DUCK CREEK	WASHINGTON CO	9	2	65	22	-	-	-	21				-	-	-	-
DUCK CREEK	WASHINGTON CO	9	10	65	21	-	-	-	234				-	-	-	-
OHIO RIVER	WASHINGTON CO	5	13	65	24	-	-	-	22,799				-	-	-	-
SANDUSKY CREEK	WYANDOT CO	7	28	65	31	-	-	-	3,529				-	-	-	-
SANDUSKY RIVER	WYANDOT CO	8	25	65	31	-	-	-	65				-	-	-	-
OKLAHOMA																
ROCK CREEK	ELMORE CITY	10	2	65	31	1%	99%	-	2,000		2			1M	3	-
FT GIBSON RESVR	PRYOR	12	24	65	31	-	-	-	-				-	-	-	-
WALNUT CREEK	PURCELL	7	28	65	31	5%	95%	-	500	1				1M	1	-
BIG TURKEY CREEK	WAUKOMIS	1	28	65	25	1%	99%	99%	1,200,080		2			39M	5	-
SANDY CREEK	WILBURTON	12	1	65	31	-	-	-	-				-	-	-	-
OREGON																
WILLAMETTE RIVER	ALBANY	6	25	65	27	-	-	-	-				-	-	-	-
DEVILS LAKE	DEVILS LAKE	8	3	65	32	-	-	-	-				-	-	-	-
TUALATIN RIVER	FOREST GROVE	8	19	65	31	-	-	-	-				-	-	-	-
SPOUT CREEK	HARLAN	8	28	65	28	10%	90%	-	499				4	1M	1	-
SOUTH SANTIAM RIV	LEBANON	9	27	65	22	-	-	-	-				-	-	-	-
LOUSE CREEK	MERLIN	4	29	65	28	10%	90%	-	50	1				1M	-	6
LAKE OSWEGO	OSWEGO	8	5	65	32	-	-	-	-				-	-	-	-
BLUE LAKE	PORTLAND	8	9	65	50	70%	30%	-	10,000			3		20A	-	12
COLUMBIA SLOUGH	PORTLAND	9	7	65	33	-	-	-	-				-	-	-	-
JOHNSON CREEK	PORTLAND	6	30	65	26	-	-	-	-				-	-	-	-
JOHNSON CREEK	PORTLAND	8	2	65	23	-	-	-	-				-	-	-	-
TRIB WILLAMETTE R	PORTLAND	4	27	65	24		100%	-	50	1				1M	-	-
CEDAR CREEK	REX HILL	4	26	65	50	-	-	-	-				-	-	-	-
BENEDICT POND	SALEM	6	23	65	28	-	-	-	-				-	-	-	-
PENNSYLVANIA																
TRIB BEAVER CREEK	ABBOTTSTOWN	2	13	65	28		100%	-	300			3		2M	1	-
JORDAN CREEK	ALLENTOWN	5	28	65	30	40%	60%	-	2,528		2			1M	-	1
JORDAN CREEK	ALLENTOWN	9	10	65	30	40%	60%	-	200				4	1M	-	4
JORDAN CREEK	ALLENTOWN	9	27	65	28	28%	72%	-	3,000	1				1M	3	-
LEHIGH RIVER	ALLENTOWN	6	2	65	28	50%	50%	-	50				4	1M	-	4
LITTLE LEHIGH CR	ALLENTOWN	5	15	65	22	50%	50%	-	5,000		2			2M	1	-
LITTLE LEHIGH CR	ALLENTOWN	7	24	65	28	90%	10%	-	35				4	1M	-	8

OPERATIONS CODES

10 Agricultural Operations
- 11 Poisons (*Herbicides, Pesticides, etc.*)
- 12 Fertilizers
- 13 Manure, Silo, Feedlot Drainage, etc.

20 Industrial Operations
- 21 Mining
- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

30 Municipal Operations
- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

40 Transportation Operations
- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

90 Unknown (See next table, p. 26)

Report of Pollution-Caused Fish Kills (Continued)

Cumulative Listing of Reports Received as of Date of Listing

OPERATIONS CODES

10 Agricultural Operations
- 11 Poisons (*Herbicides, Pesticides, etc.*)
- 12 Fertilizers
- 13 Manure, Silo, Feedlot Drainage, etc.

20 Industrial Operations
- 21 Mining
- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

30 Municipal Operations
- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

40 Transportation Operations
- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

90 Unknown (See next table, p. 26)

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL: MONTH	DAY	YEAR	OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED: PERCENT GAME	PERCENT FORAGE	PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY: TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)	ESTIMATED MILES OR ACRES AFFECTED	DURATION OF TYPICAL EFFECT: DA	HR
PENNSYLVANIA -CONT																
TROUT CREEK	ALLENTOWN	9	9	65	30	40%	60%	-	1,500			3		1M	2	-
WILLIAMS FARM POND	ALVERDA	5	14	65	11	60%	40%	-	50				4	1A	-	2
POSSESSING CREEK	ANDALUSIA	7	28	65	30	20%	80%	-	30,000	1				1M	2	-
KISACOQUILLAS CR	BELLEVILLE	11	26	65	22	90%	10%	-	1,000			3		1M	1	-
SWAMP CREEK	BIVERTOWN	5	19	65	24	20%	80%	-	50				4	1M	-	2
WEST SWAMP CREEK	BIVERTOWN	4	15	65	24		100%	-	20				4	1M	-	12
MONONGAHELA RIVER	BRADDOCK	10	7	65	26	40%	60%	-	5,000			3		2M	1	12
SCHUYLKILL RIVER	BRIDGEPORT	5	6	65	24	30%	70%	-	400				4	-	-	-
NANCY RUN CREEK	BUTZTOWN	6	23	65	34	75%	25%	-	120				4	1M	-	3
CONOCOCHEAGUE CR	CALEDONIA	6	18	65	31	10%	90%	-	162				4	1M	-	12
CONODOGUINET CR	CARLISLE	4	28	65	32	50%	50%	-	150				4	1M	1	-
CONOCOCHEAGUE CR	CHAMBERSBURG	4	22	65	31	75%	25%	-	15				4	1M	-	12
TRIB CROOKED CR	CLYMER	4	2	65	21	50%	50%	-	-	1				5M	3	-
TRIB BUSHKILL CR	EASTON	8	31	65	24	20%	80%	-	1,000			3		1M	1	-
BRANCH OF SINN CR	EMPORIUM	8	9	65	28	50%	50%	-	2,500		2			1M	-	12
EAST SANDY CREEK	ERIE	8	20	65	21		100%	-	100				/	1M	3	-
BIG SEWICKLEY CR	FOUR LAKE	6	30	65	44	40%	60%	-	3,000			3		1M	2	-
SQUAW RUN	FOX CHAPEL	7	20	65	31	5%	95%	-	400				4	1M	-	12
PEACH RUN	FREDERICKSBURG	6	21	65	22	20%	80%	-	200				4	1M	5	-
LEHIGH RIVER	FULLERTON	8	5	65	28	10%	90%	-	10				4	2M	-	5
GARLAND RUN	GARLAND	6	6	65	26	10%	90%	-	500			3		1M	-	12
PINE CREEK	GLENSHAW	6	28	65	26	20%	80%	-	10,000		2			3M	1	12
PINE CREEK	GLENSHAW	12	9	65	28		100%	-	200				4	1M	1	-
W BR FRENCH CREEK	GREENFIELD TWP	8	7	65	30	50%	50%	-	500			3		7M	6	-
W BR FRENCH CREEK	GREENFIELD TWP	9	24	65	30	20%	80%	-	125				4	7M	3	-
LITTLE MAHONING C	HILLSDALE	4	4	65	21	90%	10%	-	5,000		2			11M	4	-
BRUSH CREEK	HILLIDAYSBURG	8	31	65	41	30%	70%	-	3,000			3		1M	-	12
HOOEN RUN-SO BR	HUNTINGDON	6	9	65	13	40%	60%	-	500				4	1M	-	-
BEAVERDAM CREEK	JENNERSTOWN	7	18	65	21	80%	20%	-	592		2			2M	3	-
W BR SUSQUEHANNA	JERSEY SHORE	9	4	65	21	20%	80%	-	125,000	1				30M	15	-
PINE CREEK	KEENA STATION	4	13	65	42	100%		-	55				4	1M	-	6
CONESTOGA CREEK	LANCASTER	8	22	65	28	40%	60%	-	6,000		2			1M	14	-
BENNER SPRING CR	LEMONT	11	13	65	24	70%	30%	-	4,332	1				2M	-	12
SPRING CREEK	LEMONT	4	19	65	24	50%	50%	-	16				4	-	-	-
TRIB TO PINE CR	LORAINTVILLE	4	21	65	24		100%	-	15				4	-	-	3
DONEGAL CREEK	MARIETTA	11	25	65	11	20%	80%	-	-	1				2M	3	-
RIDLEY CREEK	MEDIA	6	11	65	32	50%	50%	-	100				4	1M	2	-
LITTLE CHICKIES C	MOUNT JOY	4	7	65	31	50%	50%	-	-	1				5M	5	-
LITTLE CHICKIES C	MOUNT JOY	8	5	65	31	80%	20%	-	250				4	4M	3	-
TULPEHOCKEN CREEK	MYERSTOWN	4	3	65	26	50%	50%	-	2,200	1				4M	3	-
HATCH RUN	NORTH WARREN	9	30	65	13		100%	-	2,000				4	1M	-	8
NOLF RUN	NORTH FREEDOM	9	3	65	21	50%	50%	-	1,749			3		2M	4	-
SIXTEEN MILE CR	NORTH EAST	9	3	65	27	50%	50%	-	-		2			16M	1	-
INDIAN CREEK	OLD ZIONSVILLE	7	1	65	26	50%	50%	-	2,000		2			2M	-	12
DELAWARE RIVER	PHILADELPHIA	7	7	65	43		100%	-	2,000			3		4M	3	-
SO BR CODORUS CR	RAILROAD	1	9	65	22	20%	80%	-	3,652			3		2M	-	-
SCHUYLKILL RIVER	READING	8	13	65	35		100%	-	1,000			3		1M	1	12
HALTER CREEK	ROARING SPRINGS	7	1	65	29	50%	50%	-	500				4	1M	-	12
LITTLE MAHONING C	ROCHESTER MILLS	4	4	65	21	80%	20%	-	5,000		2			6M	5	-
WOODCOCK CREEK	SAEGERTOWN-EAST	7	20	65	11	15%	85%	-	600,038	1				3M	1	-
ANTIETAM CREEK	SAINT LAWRENCE	8	9	65	31		100%	-	450				4	1M	1	-
HAY CREEK	SCARLETS MILL	9	9	65	44	45%	55%	-	32,970		2			2M	12	-
TRIB E BR PERKIOMEN	SELLERSVILLE	9	6	65	25	40%	60%	-	200				4	1M	-	12
SHEPARD CREEK	SOUTH WAVERLY	6	30	65	22	40%	60%	-	17,875		2			3M	1	-
CONNEAUT CREEK	SPRINGBORO	8	19	65	22	40%	60%	-	350				4	1M	3	-
SWIFTWATER CREEK	SWIFTWATER	6	7	65	50	40%	60%	-	1,100			3		2M	2	-
BEAVER RUN E BR	TWIN OAKS	9	24	65	25	40%	60%	-	985			3		1M	1	-
E BR LEBOEUF CR	WATERFORD	7	5	65	11	5%	95%	-	200				4	2M	2	-
DOE RUN	WELLSVILLE	9	22	65	26		100%	-	-			3		1M	3	-

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL			OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED		PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY				ESTIMATED MILES OR ACRES AFFECTED	DURATION OF CRITICAL EFFECT	
		MONTH	DAY	YEAR		PERCENT GAME	PERCENT FORAGE			TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)		DA	HR
PENNSYLVANIA -CONT																
CHEST CREEK	WESTOVER	7	16	65	21	50%	50%	-	50,540	1				5M	5	-
BROCK CREEK	YARDLEY	8	24	65	28	20%	80%	-	1,000			3		2M	3	-
BUCK CREEK	YARDLEY	3	24	65	28	40%	60%	-	1,024			3		1M	-	12
SUSQUEHANNA RIVER	YORK HAVEN	3	16	65	35	50%	50%	-	200				4	2M	2	-
WILLIS CREEK	YORK	9	1	65	28	-	-	-	-				4	1M	-	-
CONNOQUENESSING C	ZELIENOPLE	6	8	65	26	75%	25%	-	5,000		2			6M	2	-
RHODE ISLAND																
BLACKSTONE RIVER	ALBION	4	6	65	27		100%	-	1,000		2			3M	-	-
MESHANTICUT LAKE	CRANSTON	8	15	65	11	5%	95%	-	5,000	1				7A	2	-
SOUTH CAROLINA																
TRIB BLACK RIVER	KINGSTREE	5	18	65	22	70%	30%	-	-		2			-	-	-
SOUTH DAKOTA																
SHERBROTH PD 162	ORAL	7	9	65	41	75%	25%	-	-		2			3A	-	-
TENNESSEE																
HATCHIE RIVER	BOLIVAR	7	12	65	22	35%	65%	27%	260				4	5M	1	-
OBEY RIVER-E FORK	BYRDTOWN	7	29	65	21	10%	90%	17%	143				4	40M	-	-
CHICKAMAUGA RESVR	CHATTANOOGA	5	11	65	24	24%	76%	8%	6,000			3		150A	2	-
FAIAR BR-EAST FK	CHATTANOOGA	5	21	65	50	95%	5%	-	150				4	1M	2	-
RED RIVER	CLARKSVILLE	8	15	65	22	24%	76%	-	12,000			3		1M	-	12
CHEATHAM CREEK	EAGLEVILLE	4	21	65	13	50%	50%	-	1,500			3		1M	3	-
ROARING FORK CR	GATLINBURG	9	3	65	33	24%	76%	-	3,700				4	1M	3	-
BEAVER CREEK	KNOXVILLE	10	21	65	22	10%	90%	-	100		2			3M	1	-
LOOSAHATCHIE RIV	MEMPHIS	5	10	65	24	10%	90%	40%	3,000				4	5M	-	-
MILL CREEK	NASHVILLE	1	28	65	50	10%	90%	-	500				4	-	2	-
RICHLAND CREEK	NASHVILLE	7	22	65	11		100%	-	30				4	1M	-	12
SHELBY PARK LAKE	NASHVILLE	12	11	65	30		100%	-	-				4	-	-	6
NEW RIVER	ONEIDA	8	1	65	21	-	-	-	10,000		2			15M	17	-
BAILEY FORK CREEK	PARIS	8	28	65	31		100%	-	40				4	3M	-	12
TEXAS																
BENNETT CREEK	ADAMSVILLE	6	26	65	24	50%	50%	-	75			3		2M	2	-
DRAINAGE CANAL	ALTA LOMA	2	13	65	25		100%	-	6				4	-	-	-
MUSTANG BAYOU	ALVIN	5		65	31		100%	-	200				4	-	-	-
PLEASANT BAYOU	ALVIN	4	22	65	25	25%	75%	-	200				4	-	-	-
CANADIAN RIVER	AMARILLO	3	25	65	31	40%	60%	-	-		2			-	-	-
REDFISH BAY	ARANSAS PASS	4	10	65	43	-	-	100%	-				4	-	1	-
COLORADO RIVER	AUSTIN	3	26	65	31		100%	-	500				4	1M	1	-
COLORADO RIVER	AUSTIN	10	12	65	31	30%	70%	-	2,000				4	-	-	3
GOOSE CREEK	BAYTOWN	9	20	65	31		100%	-	5,000			3		1M	1	-
SAN JACINTO BAY	BAYTOWN	9	23	65	31		100%	-	5,000			3		5A	1	-
NECHES RIVER	BEAUMONT	7	29	65	27	5%	95%	-	500				4	1M	1	-
WHITE ROCK CREEK	BRANDON	4	24	65	13	20%	80%	10%	-			3		3M	2	-
UNNAMED CANAL	BRAZORIA	6	23	65	50	15%	85%	5%	2,000				4	5M	-	-
OLD RIVER	CHANNELVIEW	9	24	65	31		100%	-	5,000			1		20M	1	-
UNNAMED STREAM	CHICO	3	26	65	27	80%	20%	-	200	1				3M	2	-
CRYSTAL CREEK	CONROE	9	22	65	24	50%	50%	-	1,000	1				15M	-	-
ESPANTOSA CREEK	CRYSTAL CITY	2	22	65	22	2%	98%	-	-				4	-	3	-

OPERATIONS CODES

10 Agricultural Operations
- 11 Poisons (*Herbicides, Peaticides, etc.*)
- 12 Fertilizers
- 13 Manure, Silo, Feedlot Drainage, etc.

20 Industrial Operations
- 21 Mining
- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

30 Municipal Operations
- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

40 Transportation Operations
- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

90 Unknown (See next table, p. 26)

Report of Pollution-Caused Fish Kills (Continued)

Cumulative Listing of Reports Received as of Date of Listing

OPERATIONS CODES

10 Agricultural Operations
- 11 Poisons (*Herbicides, Pesticides, etc.*)
- 12 Fertilizers
- 13 Manure, Silo, Feedlot Drainage, etc.

20 Industrial Operations
- 21 Mining
- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

30 Municipal Operations
- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

40 Transportation Operations
- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

90 Unknown (See next table, p. 26)

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL: MONTH	DAY	YEAR	OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED: PERCENT GAME	PERCENT FORAGE	PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY: TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)	ESTIMATED MILES OR ACRES AFFECTED	DURATION OF CRITICAL EFFECT: DA	HR
TEXAS -CONT-																
UNNAMED STREAM	DENTON	4	10	65	31	10%	90%	-	200			3		1M	-	10
NECHES RIVER	DIBOLL	9	27	65	23	10%	90%	50%	6,000			3		-	1	-
BERNARD RIVER	EAST BERNARD	5	4	65	31	50%	50%	-	-				4	-	2	-
ARROYO COLORADO	EDINBURG	11	8	65	42	50%	50%	-	300				4	1M	1	-
UNNAMED STREAM	FORT WORTH	8	3	65	22	10%	90%	-	3,000				4	2M	1	-
GALVESTON BAY	GALVESTON	11	8	65	31	1%	99%	-	500				4	1M	-	12
ROY WARREN POND	GREENVILLE	6	20	65	11	5%	95%	-	-				4	-	3	-
CLEAR FK BRAZOS R	HAWLEY	8	17	65	11	30%	70%	-	-			3		4M	2	-
TRINITY RIVER	KERENS	4	23	65	24	10%	90%	-	-				4	1M	2	-
BAYOU VISTA	LA MARQUE	8	4	65	31		100%	-	1,000				4	-	-	-
TRIP TO HIGHLANDS	LA MARQUE	5	13	65	31		100%	-	-		2			1M	?	-
SAN JACINTO BAY	LA PORTE	9	28	65	31		100%	-	5,000			3		2M	?	-
FORK OF BRAZOS R	LUBBOCK	3	12	65	31	25%	75%	-	200		2			1M	-	-
ANGELINA RIVER	LUFKIN	8	18	65	23	10%	90%	-	-			3		-	2	-
UNNAMED STREAM	MANSFIELD	10	20	65	31	30%	70%	-	2,000		2			-	-	3
FOX CREEK	MARSHALL	5	13	65	25	20%	80%	-	-				4	1M	-	12
HOUSTON SHIP CHAN	MORGANS POINT	9	23	65	31		100%	-	-			3		-	1	-
WANDA CREEK	NACOGDOCHES	2	9	65	25	50%	50%	-	-				4	5M	1	-
MOORES LAKE	NEVADA	6	22	65	50	20%	80%	-	-	1				1A	2	-
SABINE RIVER	ORANGE	8	17	65	43		100%	-	50				-	1M	-	4
RED OAK CREEK	OVILLA	12	2	65	11	10%	90%	80%	-		2			-	3	-
PRIVATE LAKE	PALESTINE	9	13	65	25		100%	-	-		2			-	5	-
PINE CREEK	PARIS	5	2	65	41	35%	65%	20%	-		2			1M	-	6
NUECES BAY	PORTLAND	3	5	65	25	5%	95%	-	-				4	1M	3	-
MEDINA RIVER	SAN ANTONIO	4	15	65	13	50%	50%	-	-				4	5M	3	-
MEDINA RIVER	SAN ANTONIO	8	21	65	13	2%	98%	-	1,000				4	-	-	-
MEDINA RIVER	SAN ANTONIO	10	21	65	13	5%	95%	-	-				4	5M	2	-
MEDINA RIVER	SAN ANTONIO	11	10	65	13	10%	90%	-	-			3		3M	2	-
MEDINA RIVER	SAN ANTONIO	12	14	65	13	-	-	-	500				4	2M	2	-
SAN ANTONIO RIVER	SAN ANTONIO	5	28	65	31	-	-	-	1,000			3		2M	1	-
WILLOW SPRINGS	SAN ANTONIO	7	30	65	11	60%	40%	-	10,000			3		3M	3	-
IND BARGE CANAL	SEADRIFT	4	26	65	24	50%	50%	-	-		2			-	-	-
SANDIES CREEK	SHERIDAN	8	23	65	25	-	-	-	500			3		3M	-	7
COLORADO RIVER	SILVER	4	1	65	25	5%	95%	-	-		2			5M	20	-
WHITE OAK CREEK	TALCO	8	25	65	25	33%	67%	-	-			3		-	2	-
HOUSTON SHIP CHAN	TEXAS CITY	3	12	65	24		100%	30%	-			3		-	1	-
SWANS LAKE	TEXAS CITY	12	1	65	50		100%	-	500				-	1A	1	-
COLORADO RIVER	WADSWORTH	8	23	65	13	5%	95%	4%	500				4	1M	1	-
UNNAMED STREAM	WICHITA FALLS	5	14	65	25	2%	98%	-	-			3		3M	-	-
BUSHY CREEK	YOAKUM	1	16	65	25	85%	15%	-	15,000	1				-	-	-
UTAH																
BEAR RIVER	CACHE JUNCTION	7	1	65	11	50%	50%	-	800		2			40M	4	-
LITTLE LOGAN RIV	LOGAN	7	25	65	50	75%	25%	-	250	1				1M	-	4
PARLEYS CREEK	SALT LAKE CITY	7	21	65	30	85%	15%	-	1,750	1				10M	1	-
VERMONT																
WINOOSKI RIVER	CAROT-MONTPELER	7	13	65	22	-	-	-	-		2			22M	4	-
MAD RIVER	WARREN	7	31	65	28	95%	5%	-	500				4	1M	-	6
VIRGINIA																
PRATER CREEK	BUCHANAN CO	9	11	65	22		100%	-	200				4	-	-	-
CRANBERRY CREEK	HILLSVILLE	1	18	65	31	-	-	-	-				-	4M	-	-
GOOSE CREEK	MONTVALE	10	3	65	44		100%	-	-		2			3M	-	-
FALLING CREEK	RICHMOND	9	12	65	31		100%	-	-		2			1M	-	-

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL			OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED		PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY				ESTIMATED MILES OR ACRES AFFECTED	DURATION OF TOXIC EFFECT	
		MONTH	DAY	YEAR		PERCENT GAME	PERCENT FORAGE			TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)		DA	HR
WASHINGTON																
GREEN RIVER	PALMER	6	8	65	32	100%		-	100				4	2M	1	-
STUCK RIVER	SUMNER	9	21	65	50	100%		-	200			3		5M	-	12
YAKIMA RIVER	YAKIMA	10	29	65	22	2%	98%	-	15,300		2			2M	-	-
WEST VIRGINIA																
CEDAR CREEK	CEDARVILLE	12	4	65	21	50%	50%	-	500		2			2M	26	-
TYGART RIVER	DAILEY	8	21	65	31	30%	70%	-	-				-	1M	3	-
FINNEY CREEK	DUNBAR	7	10	65	24	2%	98%	-	3,000	1				1M	4	-
TYGART RIVER	ELKINS	9	14	65	31	-	-	-	200			3		2M	2	-
LITTLE KANAWHA R	GLENVILLE	9	15	65	25	25%	75%	-	1,000			3		1M	1	-
NEW CREEK	KEYSER	5	25	65	42	10%	90%	-	50,000	1				6M	-	-
POCA RIVER	POCA	8	18	65	24	1%	99%	-	10,000		2			-	-	-
THREEMILE CREEK	POINT PLEASANT	10	27	65	42	5%	95%	10%	2,116	1				1M	3	-
REEDY CREEK	REEDY	9	28	65	28	2%	98%	-	250				-	1M	1	-
SPRING CREEK	RENICK	6	8	65	11	50%	50%	-	500			3		2M	1	-
BIG INDY CREEK	ROCKVILLE	6	22	65	21	5%	95%	-	500		2			1M	1	-
WEST FORK	WESTON	9	30	65	31	-	-	-	100			3		1M	3	-
WHEELING CREEK	WHEELING	6	23	65	21	10%	90%	-	100				-	1M	1	-
WISCONSIN																
TARRANT MILL POND	CAMBRIA	8	25	65	22	55%	45%	-	44,000		2			4M	3	-
RIO CREEK	RIO CREEK	8	16	65	22	30%	70%	-	100				4	2M	-	8
WYOMING																
OCEAN LAKE	PAVILLION	8	19	65	11	97%	3%	-	760				4	7A	-	3
OCEAN LAKE	PAVILLION	8	9	65	11	99%	1%	-	648				4	20A	-	3
INYAN KARA CREEK	UPTON	8	21	65	11	15%	85%	-	-		2			5M	-	-

OPERATIONS CODES

10 Agricultural Operations
- 11 Poisons (*Herbicides, Pesticides, etc.*)
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20 Industrial Operations
- 21 Mining
- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

30 Municipal Operations
- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

40 Transportation Operations
- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

90 Unknown (See next table, p. 26)

Report of Fish Kills—Cause Unknown

Cumulative Listing of Reports Received as of Date of Listing

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL: MONTH	DAY	YEAR	OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED: PERCENT GAME	PERCENT FORAGE	PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY: TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)	ESTIMATED MILES OR ACRES AFFECTED	DURATION OF CRITICAL EFFECT: DA	HR
ALABAMA																
SWEETWATER CREEK	FLORENCE	2	26	65	90	-	-	-	-				-	-	-	-
CAIN CREEK	TUSCUMBIA	1	8	65	90	47%	53%	32%	350				4	1M	1	-
CALIFORNIA																
NOYO HARBOR	MENDOCINO	7	15	65	90	50%	50%	-	2,000		2			-	-	-
PALO VERDE LAGOON	PALO VERDE	9	3	65	90	35%	65%	-	30,000		2			-	-	-
CONNECTICUT																
CONNECTICUT RIVER	ROCKY HILL	7	12	65	90	20%	80%	-	200,000		2			20M	2	-
HAWAII																
KAPALAMA DR CANAL	HONOLULU	7	12	65	90	100%		-	100,000		2			1M	4	-
ILLINOIS																
KISHWAUKEE R-S BR	DEKALB	5	22	65	90	17%	83%	76%	6,452				4	4M	-	18
CAHOKIA CANAL	MADISON	6	4	65	90	2%	98%	100%	26,837		2			2M	-	-
BEAUCOUP CREEK	PINCKNEYVILLE	12	1	65	90	25%	75%	75%	458			3		1M	-	-
INDIANA																
MANSON-KINGRY DIT	GALVESTON	7	8	65	90	1%	99%	-	2,000		2			2M	1	-
BRANDYWINE CREEK	GREENFIELD	9	14	65	90	99%	1%	-	1,000		2			1M	-	12
WILDCAT CREEK	KOKOMO	7	12	65	90	5%	95%	-	300				4	2M	1	-
PRAIRIE CREEK	LEBANON	5	24	65	90	5%	95%	-	1,000		2			3M	1	-
KANSAS																
FALL RIVER	EUREKA	7	20	65	90	30%	70%	40%	5,000		2			1M	1	-
MASSACHUSETTS																
PIERPT MEADOW PND	DUDLEY	6	11	65	90	5%	95%	-	19				4	-	-	-
UNNAMED FARM POND	GROTON	3	19	65	90	30%	70%	-	36			3		1A	2	-
OXBOW POND	NORTHAMPTON	5	25	65	90		100%	-	100,000		2			40A	2	-
STOCKBRIDGE BOWL	STOCKBRIDGE	6	2	65	90		100%	-	3,000			3		30A	2	-
MICHIGAN																
PLASTER CREEK	GRAND RAPIDS	5	3	65	90		100%	-	100				4	-	-	-
MISSOURI																
PRAIRIE CREEK	AVA	11	11	65	90	100%		-	100				4	2M	-	-
JAMES RIVER	CLEVER	8	26	65	90	20%	80%	-	2,000			3		2M	1	-

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL			OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED		PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY				ESTIMATED MILES OR ACRES AFFECTED	DURATION OF CRITICAL EFFECT	
		MONTH	DAY	YEAR		PERCENT GAME	TYPES, ANY FORAGE			TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)		DA	MM
NEBRASKA																
PEBBLE CREEK & FK	DODGE	9	7	65	90		100%	+	300				4	1M	1	+
OBERST FARM POND	FALLS CITY	4	14	65	90	100%		+	30				4	2A	+	+
HASTINGS CITY LK	HASTINGS	1	22	65	90	100%		+	5,000		2			8A	+	+
NEW HAMPSHIRE																
NASHUA RIVER	NASHUA	9	7	65	90		100%	+	+			3		2M	+	+
NASHUA RIVER	NASHUA	11	8	65	90		100%	+	2,000			3		1M	1	+
NEW JERSEY																
COHANSEY CREEK	BRIDGETON	11	13	65	90		100%	+	300			3		5M	3	+
METEDECONK RIVER	CEDARWOOD PARK	7	9	65	90	+	+	+	+		2			1M	+	13
ENGLISHTOWN POND	ENGLISHTOWN	5	24	65	90	3%	97%	+	1,600			3		5A	3	+
REPAUPO CREEK	GIBBSTOWN	7	19	65	90	+	+	+	+			3		4M	1	+
MILLTOWN POND	MILLTOWN	7	21	65	90	15%	85%	+	70				4	5A	2	+
AMBROSE BROOK	NORTH STELTON	8	30	65	90	50%	50%	+	1,000		2			1A	3	+
RAHWAY RIVER	RAHWAY	5	23	65	90	100%		+	40				4	10M	6	+
MILLSTONE RIVER	ROCKY HILL	9	21	63	90		100%	+	250				4	1M	+	+
SOUTH RIVER	SOUTH RIVER	6	2	65	90		100%	+	50				4	+	+	+
RAHWAY RIVER	SPRINGFIELD	5	23	65	90	100%		+	40				4	10M	6	+
TOMS RIVER	TOMS RIVER	9	23	65	90	5%	95%	+	50				+	1A	+	12
NEW YORK																
GENESEE RIVER	ROCHESTER	8	21	65	90		100%	+	1,500	1				+	+	+
OHIO																
MIAMI RIVER	BUTLER CO	7	28	65	90	+	+	+	+				+	+	+	+
CUYAHOGA RIVER	CUYAHOGA CO	5	27	65	90	+	+	+	920				+	+	+	+
ALUM CREEK	FRANKLIN CO	10	4	65	90	+	+	+	13,613				+	+	+	+
TURKEYFOOT CREEK	HENRY CO	4	23	65	90	+	+	+	45				+	+	+	+
KILLBUCK CREEK	HOLMES CO	7	22	65	90	+	+	+	523				+	+	+	+
BLACK RIVER	LORAIN CO	6	28	65	90	+	+	+	65				+	+	+	+
TEN-MILE CREEK	LUCAS CO	9	15	65	90	+	+	+	4,855				+	+	+	+
SAWMILL-MEANDER C	MAHONING CO	8	7	65	90	+	+	+	+				+	+	+	+
MIAMI RIVER	MONTGOMERY CO	9	8	65	90	+	+	+	+				+	+	+	+
BEAR CREEK	MONTGOMERY CO	9	24	65	90	+	+	+	+				+	+	+	+
CLEAR FORK	RICHLAND CO	7	15	65	90	+	+	+	1,756				+	+	+	+
SCIOTO RIVER	SCIOTO CO	7	24	65	90	+	+	+	+				+	+	+	+
RR WOLF CREEK	SENECA CO	9	29	65	90	+	+	+	2,940				+	+	+	+
SUGAR CREEK	WAYNE CO	6	1	65	90	+	+	+	2,192				+	+	+	+
ST JOSEPH RIVER	WILLIAMS CO	7	9	65	90	+	+	+	3,213				+	+	+	+
OREGON																
ASHLAND & BEAR CR	ASHLAND	12	27	65	90	50%	50%	+	4,200	1				4M	1	+
G ST DRAIN DITCH	SPRINGFIELD	9	23	65	90	10%	90%	+	100	1				1M	+	2
PENNSYLVANIA																
LETORT SPRING CR	CARLISLE	5	2	65	90	70%	30%	+	200			3		+	1	+
LITTLE CONESTOGA	EAST PETERSBURG	8	8	65	90	70%	30%	+	400			3		2M	1	+

Report of Fish Kills—Cause Unknown (Continued)

Cumulative Listing of Reports Received as of Date of Listing

RIVER OR LAKE AFFECTED	NEAREST TOWN OR CITY	DATE OF KILL: MONTH	DAY	YEAR	OPERATIONS INDICATED AS RESPONSIBLE FOR KILL (SEE CODES BELOW)	TYPE OF FISH KILLED: PERCENT GAME	PERCENT FORAGE	PERCENT OF KILL WHICH WAS OF COMMERCIAL VALUE	ESTIMATED NUMBER OF FISH KILLED	SEVERITY: TOTAL (1)	HEAVY (2)	MODERATE (3)	LIGHT (4)	ESTIMATED MILES OR ACRES AFFECTED	DURATION OF CRITICAL EFFECT: (a)	(b)
PENNSYLVANIA -CONT																
LAKE ERIE	ERIE	6	11	65	90	100%		-	20				-	1M	1	-
DARBY CREEK	FOLCROFT	8	25	65	90		100%	-	126,000		2			2M	3	-
TRIB KAERCHER CR	HAMBURG	7	10	65	90	100%		-	8,000		2			1A	1	-
LACKAWANNA RIVER	JERMYN-MAYFIELD	6	23	65	90	80%	20%	-	384				4	2M	-	12
CHICKIES CREEK	MANHEIM	7	23	65	90	20%	80%	-	2,000			3	-	-	3	-
CONEWAGO CREEK	NEW CHESTER	10	24	65	90	30%	70%	-	200				4	1M	7	-
DELAWARE RIVER	PHILADELPHIA	5	18	65	90	30%	70%	-	-		2			3M	1	-
PERKIOMEN CREEK	RAHNS	5	17	65	90	50%	50%	-	100				4	1M	-	12
FURNACE CREEK	ROBESONIA	6	30	65	90	20%	80%	-	600				4	1M	-	2
PENNS CREEK	SELINSGROVE	8	10	65	90	100%		-	40				4	-	3	-
COXES CREEK-E BR	SOMERSET	5	14	65	90	80%	20%	-	228				4	2M	2	-
DELAWARE RIVER	YARDLEY	5	15	65	90	100%		-	20,000		2			2M	8	-
TENNESSEE																
DUCK RIVER	CENTERVILLE	4	2	65	90		100%	-	600				4	-	2	-
LOOSAHATCHIE RIV	MEMPHIS	10	6	65	90		100%	5%	9,280			3		10M	2	-
TEXAS																
CRYSTAL BAY	BAYTOWN	4	30	65	90		100%	-	300			3		-	-	-
UNNAMED STREAM	COMANCHE	6	23	65	90	5%	95%	-	1,000	1				-	9	-
TRINITY RIVER	FORT WORTH	6	22	65	90	15%	85%	-	10,000		2			6M	-	-
GREENS BAYOU	HOUSTON	3	15	65	90	90%	70%	10%	100				4	-	-	-
SULPHUR CREEK	LAMPASAS	6	20	65	90	20%	80%	-	300				4	-	1	-
CLEAR FK BRAZOS R	LELIDERS	1	12	65	90	5%	95%	-	35				4	-	-	-
CHOCOLATE BAYOU	MANVEL	2	13	65	90	15%	85%	5%	200				4	-	-	-
SOUTH BOSQUE	MCGREGOR	9	9	65	90	5%	95%	-	600		2			-	2	-
NAVASOTA RIVER	MIDWAY	9	28	65	90	50%	50%	-	2,000			3		-	2	-
ALLIGATOR BAYOU	NEDERLAND	9	24	65	90	20%	80%	-	500			3		2M	1	-
GALVESTON BAY	SEABROOK	6	30	65	90		100%	-	1,500				4	1M	-	-
PINE ISLAND BAYOU	SOURLAKE	5	23	65	90	10%	90%	-	500			3		-	2	-
CARBIDE CANAL	TEXAS CITY	6	15	65	90		100%	-	8,000		2			-	1	-
GALVESTON BAY	TEXAS CITY	9	5	65	90	1%	99%	-	1,000				4	-	-	-
GALVESTON BAY	TEXAS CITY	10	13	65	90	5%	95%	-	5,000				4	-	-	-
COLORADO RIVER	WADSWORTH	9	13	65	90	-	-	-	500				4	1M	1	-
WICHITA RIVER	WICHITA FALLS	7	13	65	90	10%	90%	-	750		2			2M	1	-
VIRGINIA																
LINVILLE CREEK	BROADWAY	11	30	65	90	10%	90%	-	13,000	1				5M	2	-
WEST VIRGINIA																
KANAWHA RIVER	HENDERSON	6	28	65	90		100%	-	65,000		2			2M	3	-
KANAWHA RIVER	SO CHARLESTON	8	19	65	90	20%	80%	10%	4,500		2			3M	2	-

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In its assigned function as the Nation's principal natural resource agency, the Department of the Interior bears a special obligation to assure that our expendable resources are conserved, that renewable resources are managed to produce optimum yields, and that all resources contribute their full measure to the progress, prosperity, and security of America, now and in the future.

U.S. DEPARTMENT OF THE INTERIOR

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